Overcoming Barriers to Change
The Effects of Staff Perceptions

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OVERCOMING BARRIERS TO CHANGE IN ACUTE MENTAL HEALTH WARDS: THE EFFECTS OF STAFF PERCEPTIONS

INSTITUTE OF PSYCHIATRY, PSYCHOLOGY AND NEUROSCIENCE

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Abstract

Background

Capturing how nursing staff perceive barriers to change may clarify why, despite investments to improve mental health wards, change has been problematic. Given changes are disruptive and wards are frequently volatile, detrimental effects such as worsened perceptions, reduced work satisfaction and burnout are likely. However, there are currently no measures of perceptions of barriers to change for use in mental health wards.

Aims

i. To undertake a qualitative investigation into how nursing staff conceptualise barriers to change

ii. To develop a measure of perceptions of barriers to change

iii. To psychometrically test the measure

iv. To explore demographic and ward level factors affecting perceptions of barriers to change.

v. To explore the cross sectional relationships between staff perceptions of barriers to change, ward climate, work satisfaction and burnout.

vi. To explore whether participation in an intervention worsens perceptions of barriers to change.

vii. To explore whether perceptions of barriers to change worsen work satisfaction and burnout across time.

Methods

Perceptions of barriers to change were examined using mixed methods and by adopting a model of stakeholder involvement. Interviews were undertaken, and then thematically analysed, to produce VOCALISE: a measure of perceptions of barriers to change. Following psychometric testing, VOCALISE was used in a randomised controlled trial introducing intensive changes. This allowed cross-sectional and longitudinal relationships (between VOCALISE, ward climate, work satisfaction and burnout) to be examined, using multi-level regression modelling.

Results

VOCALISE had promising psychometric properties. Three subscales were identified capturing themes of resistance including powerlessness, low confidence and demotivation.

At baseline, VOCALISE was predicted by ward climate, incidents and temporary staff. Staff with more negative perceptions of barriers to change had increased burnout and reduced work satisfaction. At baseline and follow up, younger and direct care staff had worse VOCALISE scores than older and more senior staff. At follow up, the impact of change and baseline ward

climate led to poorer perceptions of barriers to change in the intervention group than in the control group. Negative baseline VOCALISE scores predicted work dissatisfaction, and this effect was greater in the intervention group.

Discussion

As change had a detrimental impact on perceptions (particularly for direct care and younger staff), future research should consider how to reduce the burden of innovation in challenging work environments, like acute wards. This may improve how staff respond to changes, and increase work satisfaction and the quality of care offered to service users.

Table of Contents

Table of Figures

Table of Tables

Table of boxes

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Finally, I am very grateful to all those nursing staff who contributed to this thesis. It is in support of them, and the wider nursing profession, that I present these studies.

Statement of authorship

In this thesis, I completed the qualitative and measure development work with supervision. As this project was conducted as part of a wider programme, there was research assistant support during the data collection and data input of the staff measures that were also used in the DOORWAYS project. Statistical advice was provided during all quantitative aspects of this project and I undertook all analyses.

Chapter 1 : Overcoming barriers to change in acute in-patient care – the effects of nursing staff perceptions

1.1 Introduction

Health services are complex organisations, which are characterised by substantial and ongoing organisational change as a result of research innovations and service developments. Despite great efforts and investment into the development of new technologies and innovations, relatively few research findings are translated into health care practice (Grol, Bosch et al. 2007, Eccles, Armstrong et al. 2009, Williams, Glisson et al. 2016).

To address this problem, the field of implementation science has emerged, which directly engages with the challenges of embedding change. Implementation science has been defined as:

> 'the scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice, and hence to improve the quality (effectiveness, reliability, safety, appropriateness, equity, efficiency) of health care. (Eccles, Armstrong et al, 2009: p.2)'.

In the UK there are many NHS settings where changes have been difficult to implement. In particular, acute mental health wards have attracted criticism over recent decades for being slow to deliver improvements in care (Corry 2004, Evans, Rose et al. 2012), and for low levels of activity in promoting social engagement and therapeutic interaction (Sharac, McCrone et al. 2010, Csipke, Flach et al. 2013). There is currently insufficient research that addresses how staff working in the health services anticipate and respond to innovation (Kuokkanen et al, 2009; Martin et al, 2005). Understanding more about how staff view upcoming changes might allow an exploration of feasibility and current working conditions, to inform future implementation strategies. Building an outcome measure through direct participation, might inform future implementation measures, if direct participation produces novel, 'real setting' items. In addition, the information might highlight employee morale and motivation towards changes.

This thesis will contribute to the fields of implementation science and mental health nursing by exploring whether the perceptions of mental health nursing staff are adversely affected by change. Mixed methods and stakeholder participation (from nursing staff) will be employed to develop a new measure of barriers to change, which will be subjected to psychometric testing. Potential predictors of perceptions of barriers to change will be considered at baseline. Then, the disruption brought by innovation and the unstable ward climate will be considered in

relation to staff perceptions of barriers to change, as well as wider, negative impacts on staff perceptions of work satisfaction and burnout.

1.2 Why study the perceptions of nursing staff?

In their agenda for implementation research, Eccles, Armstrong et al. (2009) suggested that a deeper understanding of the influence of individuals within organisations is important if implementation is to succeed.

All health care professionals are involved in the ongoing management of change and delivery of care in the NHS. However, nurses represent the largest section of the workforce, they are often expected to play a key role in delivering changes and in the research reported in this thesis, nursing staff will deliver the intervention. The role of mental health nurses is predicated around relationship building and therapeutic interaction, by using both informal and evidence based techniques. The relationship between psychological and emotional well-being and the acute ward setting in relation to planned changes may, in mental health nursing, be distinct from other health professions. Within these (often) locked ward environments, where service users are not necessarily confined to beds through illness, a social milieu emerges, which is founded on interactions between the nursing staff and the service users. These social interactions may influence how staff respond to changes (Cleary 2004, Rose, Evans et al. 2015).

Whilst it is therefore clear that nurses' perceptions of changes are important it is, however, acknowledged that the decision to include only nurses will shape the knowledge presented in this thesis. There are limitations of including only nurses' perspectives, since mental health wards also employ a wider multi-disciplinary team including occupational therapists, junior doctors, consultant psychiatrists, administrators, psychologists and pharmacists. In many wards, there may be some shared leadership and decision making amongst the wider clinical team. However, the daily interaction between nursing staff and other professions in terms of role is limited. Clinical decisions made in ward round are generally cascaded to the team and modified through a feedback process over time. The nursing team executes the majority of their daily tasks in isolation of other professionals. The nursing team conducts daily management of the ward and mental health nurses remain on the ward for the duration of their shift, and are therefore well situated to consider how changes will affect the staff-service user dynamic on the unit as well as issues of feasibility and sustainability. To date, there has been little examination of how these staff cope with innovation in practice. This may explain the absence of suitable measures specifically designed to capture nursing staff perceptions of barriers to general changes in acute inpatient mental health wards.

1.3 Aims

This PhD was embedded in a large National Institute for Health Research (NIHR) programme of research entitled: Patient involvement in improving the evidence base on inpatient care [acronym: PERCEIVE]. This provided a vehicle for researching the impact of changes on staff by orchestrating evidence based changes to practice, which are described in more detail later. The aims were to:

i. Undertake a qualitative investigation into how nursing staff conceptualise barriers to change
ii. Develop a measure of perceptions of barriers to change
iii. Psychometrically test the measure

The new measure was used in the field to explore how staff responded to change over a period of innovation. Capturing individual level data on wards provided panel data so that both individual level and ward effects could be investigated. A baseline measurement of staff demographics, perceptions of barriers to change, ward climate, work satisfaction and burnout before any changes provided initial data. This cross sectional dataset allowed any predictors of perceptions of barriers to change to be identified. Associations between perceptions of barriers to change, ward climate, work satisfaction and burnout were also tested (Parker, Baltes et al. 2003, Martin, Jones et al. 2005, Aarons and Sawitzky 2006a, Aarons and Sawitzky 2006b), according to the following aims:

iv. To explore factors which affected perceptions of barriers to change.
v. To explore the relationships between staff perceptions of barriers to change, ward climate, work satisfaction and burnout.

After changes were implemented, data were collected at 12 months, to allow an exploration of the longitudinal effects of change on the perceptions of the workforce. It was also possible to examine whether staff perceptions of barriers to change got worse after a period of innovation. The new barriers to change measure was compared with VOTE (ward climate) and other measurable outcomes, within a randomised controlled trial (RCT) design. Job satisfaction and burnout were explored as potential outcomes of the challenges of implementing changes.

The aims were to:

i. Explore whether participation in an intervention worsened perceptions of barriers to change and to consider the influence of ward climate.

ii. Explore whether perceptions of barriers to change worsened work satisfaction and burnout across time, in the context of participation in an intervention.

At 12 months, it will be expected that staff perceptions would worsen if changes caused disruption. The group experiencing changes was compared to a control group, who did not receive any intervention. Any variable shown to influence perceptions of barriers to change at baseline, was controlled in the analyses so that the effects of any change related disruption were clear.

1.4 Study context

The context for this thesis was a large NIHR programme grant (CI: Professor Til Wykes) entitled: Patient involvement in improving the evidence base on inpatient care [acronym: PERCEIVE]. The PERCEIVE programme included four work packages, work packages 1, 3 and 4 are relevant to this thesis.

The first work package of PERCEIVE presented an opportunity for outcome measures to be developed using qualitative methods. As part of this work package, one measure, which captured nursing staff perceptions of the daily stressors of acute ward working [acronym: 'VOTE'], was developed for use in the wider programme. The development of 'VOTE' followed a participatory methodology, using focus groups to explore staff views of acute ward settings.

The third work package was a randomised controlled trial (acronym: DOORWAYS). The DOORWAYS project aimed to improve the therapeutic milieu in acute wards by introducing predominantly nurse led therapeutic interventions. DOORWAYS was conducted in two boroughs of a London Mental Health Foundation Trust on eight acute in-patient mental health wards. Staff from all bands were eligible to participate in the study. Understanding the perspective of staff of all grades was considered important because changes were expected to affect staff groups differently. DOORWAYS allowed an intensive period of change (much of which was delivered by nurses) within the acute in-patient services providing the basis for this thesis and the opportunity to answer key questions, which were shaped by this review of the literature, including:

- In acute mental health wards, what influences perceptions of barriers to change?
- Do perceptions of barriers to change worsen over time because of implementation disruption?
- Are there adverse longitudinal effects on staff perceptions of job satisfaction and burnout, as a result of participating in changes?

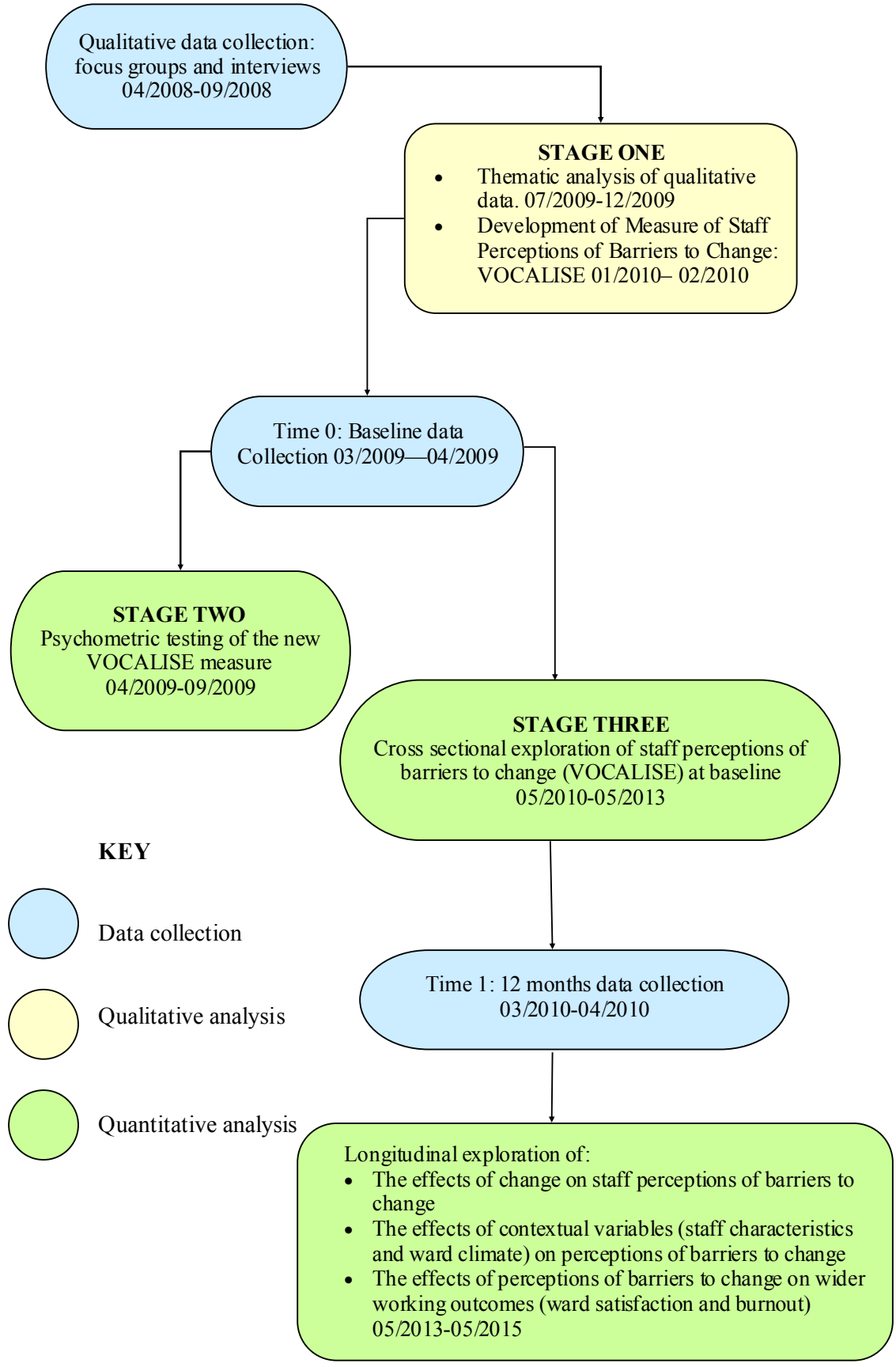
The fourth work package (BETTER PATHWAYS) contributed data used in the psychometric testing of VOCALISE.

At the time of this research (which focused on a planned change to eight acute in-patient wards); the foundation Trust under study launched an initiative to improve the acute in-patient services. It used benchmarks set out in the 'Standards for Better Health document' issued by

the Department of Health (DoH 2004). This ran between 2007 and 2012. The objectives included: developing standards for in-patient care; consistently meeting commissioning targets in order to compete for future contracts on in-patient service provision; and to support staff in achieving 'accreditation for in-patient mental health services' (AIMS)(Cresswell, 2013). Accreditation was awarded if staff working on the acute in-patient wards met standards across five domains. These included: general standards (policies, protocols and staffing related issues); timely and purposeful admission; safety; environment and facilities; and therapies and activities.

The research approach for this thesis is outlined in figure 1.1, which also includes dates to indicate the timeframe. As shown, the thesis will move through three distinct stages. In stage one, a qualitative exploration of staff perceptions of barriers to change will be required to develop the measure. In stage two, the measure will be completed by staff to yield quantitative data for the purpose of psychometric testing. In the third stage, VOCALISE will be incorporated into the data collection strategy for DOORWAYS to explore how the intervention impacts perceptions of barriers to change.

Figure 1.1: Research Approach



1.5 Epistemological, ontological and methodological considerations

Change has been a topic of interest in a number of academic disciplines including nursing, organisational psychology and management. Studies of organisational change are often multi-disciplinary in nature, and draw from numerous perspectives rooted mainly in the academic disciplines of (social) psychology, sociology and the study of organisational management. In sociology, researchers have considered how workforce generated implementation processes facilitate the embedding of change (May, Finch et al. 2007). In studies of management and organisations, the focus is often on structural features such as the age of the organisation, workforce size, how staff are allocated to task/supervised, or the management structure (Damanpour, 1991). Systems level impacts on change have also been considered including technology, communication networks and leadership (Damschroder, Aron et al. 2009). In studies of organisational psychology, social psychology and nursing studies the measurement of individual perceptions of psychological climate and other work related outcomes have been explored (Parker, 2003).

Many change theories over the last thirty years have evolved from two opposing ontological schools of thought for conceptualising change, in the distinction between two different versions of organisational life. In version one, the organisation is viewed as being made up of certain properties (e,g, structure, people), and change is a process that alters these components. In version two, the organisation is viewed as a set of processes with the properties of the organisation coming into being as a result of processes, so that changes are viewed as ongoing and fluctuating (Tsoukas 2005). The view that is taken of both the organisation and change itself may have implications for the way that research is undertaken and the outcomes that are reached as a result.

Over the last decade, the fields of implementation and improvement science/quality improvement have evolved rapidly to address the research to practice gap. These perspectives share similar values and often overlap methodologically. However, given improvement science generally addresses a specific problem in a healthcare system, at a local level, which leads to the design and trial of strategies to improve that problem for that healthcare system (Bauer, Damschroder et al. 2015); this better reflects the second version of an organisation.

This thesis is aligned more closely with the first conceptualization, and is presented through the lens of implementation science, which,

> “typically begins with an EBP that is under-utilized, and then identifies and addresses resultant quality gaps at the provider, clinic, or healthcare system level” (Bauer, Damschroder et al. 2015).

However, drawing on the fields of nursing and psychology, a pragmatic, mixed methods approach will be adopted, as any single method of inquiry may prove restrictive and offer only a partial account of a complex phenomenon (Eccles, Armstrong et al. 2009). An initial qualitative exploration of perceptions of barriers to change will provide rich material to develop items for a measure. Psychometric testing will be undertaken on the measure. As this thesis is concerned with the impact of an intervention on staff perceptions, the measure will then be used in a randomized controlled trial (RCT) to examine how staff respond when an evidence based intervention is implemented into ward practice. Studying the impact of change within the framework of an RCT will allow the impact of both the DOORWAYS intervention, in addition to other contextual outcomes to be studied. The advantages in using this approach will be 1) the inclusion of a control group as well as an experimental group, 2) random assignment of participants to conditions 3) the use of psychometrically sound instruments to measure outcomes. This will ensure that the impact of the intervention will be clear because 1) known and unknown person and environment characteristics that could affect the outcome of interest will be evenly distributed across each group, 2) confounders will be controlled. Given the intention to adopt an RCT design, a quality improvement approach was not suitable.

As will be discussed in more detail in the next chapter, the NHS is an interesting organisation because of its size, age and complexity. In this thesis, the social nature of mental health wards is acknowledged, and this informed the decision to study change from the perspective of groups of individuals, within wards. The change under study was planned, which is indicative of many changes in healthcare, given the hierarchical organisational structure. It was also developed externally from the NHS trust under study by researchers, and delivered using a top down approach. Although many attempts were made to engage staff in the project, initial permissions to implement the project were obtained and granted by senior trust staff without consulting frontline staff. The overall goal was to improve the therapeutic environment of the wards by increasing the use of psychological therapies, which was expected to benefit both service users and staff.

In organisations, it is generally well accepted that employees thrive on stability and resist changes that cause uncertainty and disruption (Lewin 1951; Schein 1996). It is therefore quite likely that imposing a large-scale planned change on staff may have adverse effects. However, in this thesis I will also explore the notion of organisational stability within acute mental health ward settings, which I will argue requires greater consideration than in other healthcare settings, as there are a number of potentially disruptive influences, which may explain why change has been a challenge. Clearly, employees do not respond to changes in isolation of other work practices. Ward culture and climate may also have a role in how staff experience innovation.

Some aspects of acute ward working are similar to other health settings, such as the rota system (whereby three teams of staff per day both enter and leave the ward), a perceived lack of time and staffing or resource shortages (Thompson, O'Leary et al. 2008 , Yadav and Fealy 2012). Staff may feel that these add to a sense of instability, especially in the early stages of implementation. In addition, there may be unique features within mental health services that impede innovation (Landaeta, Mun et al. 2008, Schoenwald, Carter et al. 2008). The acute mental distress presented by service users can, for example, cause a volatile and unpredictable atmosphere. In-patients can be affected either personally or vicariously by the Mental Health Act (2007), which can lead to detention, enforced medication and in some cases to violence (McGeorge, Lelliott et al. 2001, Kindy, Petersen et al. 2005). In combination with the disruptions produced by changes, these factors may feel overwhelming for staff. Changes may also bring wider effects, given there is already evidence to suggest that a challenging ward climate reduces staff satisfaction with work and increases burnout (Cleary 2004, Ward and Cowman 2007, Seed, Torkelson et al. 2010, Johnson, Wood et al. 2011).

1.5.1 Why use a participatory research model in a non-survivor researcher context?

The epistemology adopted in this thesis draws from user/survivor researchers who have argued that experiential knowledge has a greater authenticity than mainstream knowledge (Beresford 2003, Rose 2003, Sweeney 2010). Two issues guided this stance and informed the methodology for measure development.

1. A key aspect of implementation success is in engaging those who will be involved in the delivery process (Greenhalgh, Robert et al. 2004, Damschroder, Aron et al. 2009). Given changes have been difficult to embed in mental health wards and nurses can play a significant role in change delivery, capturing knowledge from the perspective of nursing staff was considered important. Mental health nursing staff were treated as stakeholders of their organisation, and they were engaged using a process of stakeholder (participatory) involvement. By valuing the expert participation of nursing staff, the intention was that the direction of the research would be more responsive to issues that staff wanted to raise. The aim was to produce a measure with a broader content domain than could be generated from a review of the literature alone, and which better accessed the reality of that setting for staff, rather than considering the construct through a purely organisational lens. It was anticipated that the final product would be more accessible, relevant and appropriate for staff.

2. As an organisation, the NHS is stratified according to professional status. The literature raises concerns that nursing voices are limited within their organisations; and in addition, that some nurses consider that they occupy the bottom rung of the professional hierarchy (Totman, Hundt et al. 2011, McNicoll 2013). In other areas of healthcare, this issue has been tackled through stakeholder involvement in health research, which allows groups who have historically been marginalised in the research process a greater influence on design and direction. The

term ‘stakeholder’ is widely understood to refer to those with a vested interest in clinical decision making in healthcare. It can encompass many groups from service users to clinicians, advocates or policy makers, and in this research it refers to nurses. The power differentials amongst nursing staff are distinct from those that exist between service users and clinicians; nonetheless, power imbalances within the workplace may still be problematic.

The stakeholder involvement methods used in this study were adapted from the User-Focused Monitoring method developed by Rose (2001) whereby, in the first instance, a reference group is convened, comprising those with specific expertise/experience regarding the topic under investigation. This group provides the overall guidance to identify the themes required to build the topic guide. The measure to be developed then emerged from direct contact with the research participants; in this case, individual interviews were held, which also helped guide the formation of the hypotheses. This makes it different from the normative models where the researcher has control of the themes and the hypotheses.

1.6 Defining implementation, change, innovation, improvement and resistance

A number of terms are used in this thesis, which may usefully be clarified in advance.

This thesis will refer to an intervention (an evidence-based suite of psychological therapies), called DOORWAYS, which was implemented on eight wards. ‘Implementation’ is process by which a specified set of activities are operationalised to put an activity or program into practice (Proctor, Powell et al. 2013). However, this thesis is concerned with the impact of the intervention on staff perceptions, and not with the process of implementation. The ‘change’ that will be delivered also refers to DOORWAYS.

According to the National Implementation research Network (http://nirn.fpg.unc.edu/learn-implementation), ’innovations’ can be considered as ‘evidence-based programs’. In this thesis, the term innovation is used in this context.

The term ‘improvement’ is generally associated with the practice of quality improvement. Quality improvement is recognised as a systematic approach to improving health services based on specific methodologies. There is an emphasis on empowering frontline teams to apply an agreed set of tools and techniques to test and measure iterative change (Ross and Naylor 2017).

According to (Lewin 1951) and Schein (1996) resistance is a group level phenomenon which forms part of the process of change within a system. Resistance is an unsurprising reaction to change given disequilibrium is an inevitable consequence, rather than a criticism of individuals or groups (Lewin 1951, Schein 1996). Resistance can be a symptom of system

level issues in an organisation such as poor planning, ineffective communication, inadequate leadership, insufficient training/support, or it can result from an organisational culture which is not receptive to changes (Greenhalgh, Robert et al. 2004, Damschroder, Aron et al. 2009). In this thesis the term 'resistance' is used non-judgementally, to characterise a group response to change. This term is adopted because a number of staff in the qualitative interviews described both individual and team responses to certain changes as 'resistant'. Maintaining the language used by the interview participants was important in upholding the participatory principle, which underpinned the measure development process. The qualitative data will be used to explore whether the individual responses of staff to changes reflect an organisational culture that promotes resistance.

Chapter 2 : Literature review

2.1 Background: the importance of context in innovation studies

Increasingly, researchers have reached agreement about the importance of context in furthering our understanding of why changes succeed or fail. Any positive impact from health innovations is likely to be mediated by human, sociocultural, and organisational factors, which may either enhance or hinder implementation (Alexander and Hearld 2012). In their recent article, Powell et al (2015) argued in favour of linking implementation strategies to barriers that consider the context of the setting involved. Given the settings of interest are acute mental health wards, exploring barriers at the ward level will best inform how staff might respond to changes. However, the NHS is subject to political and economic drivers, and so these broader organisational influences also need to be taken into account to provide some background.

In this chapter, relevant literature from the fields of psychology, mental health nursing and implementation science will be reviewed to illustrate why changes might be difficult both within wards, and from the perspective of the staff working there. The search strategy is presented in Appendix A (p.240). The literature will be used to guide measure development and to underpin subsequent analyses.

2.1.1 How might the wider health context affect ward staff?

Both hospitals and wards in U.K. mental health services have undergone major changes in the last 20 years. The decisions to restructure were largely driven by government policies to deinstitutionalize mental health services, which were considered unsustainable, and to promote social inclusion. At the time of data collection for this doctoral study, which was between February 2008 and April 2010, there were numerous wide scale and local changes (outlined below), which may have affected staff perceptions of barriers to change. There was little allowance for embedding improvements before new changes were adopted. As a result of the intensity of these changes, there have been consequences at the acute mental health ward level, many of which have led to increases in administrative burden for nursing staff.

Bed reductions

These changes included wide scale NHS structural reforms, undertaken by the Labour government (1998-2010). A restructuring of community care, which was considered to be failing, commenced in 1998/1999 and these plans were presented in three key policy documents (DoH 1998, DoH 1999, DoH 2000). The aim was to increase home treatment for those with mental health problems to reduce hospitals admissions and to deliver a more integrated pathway from hospital to home. Assertive outreach was also introduced for those with chronic and treatment resistant conditions (Stein and Test 1980, DoH 2001). This resulted in increased community care provision and reductions in acute care beds. Kinton, Sibley et al.

(2008) noted decreases in hospital beds in the acute in-patient mental health services between 1983 and 2006, of nearly two thirds. Next came a major drive to deliver efficiency savings, first announced in 2009 under a Labour government, but further cutbacks were most visible between 2011 and 2014, after the Conservative/Liberal Democrat coalition government had come into power.

At the ward level, these reforms have resulted in negative effects. There is no less demand for bed space (MHAC 2005) but patients are now admitted to hospital in later stages of relapse and therefore present in a more acute condition on the wards (Saxena and Barrett, 2007; Knapp et al, 2008). Unsurprisingly, these issues are greater in urban areas with high demand (Cleary 2004). From the perspective of front line nursing staff, administrative aspects of nursing care such as bed management, which describes the number of patients requiring movement through the health system, may present a barrier to change. Administrative factors are known to increase staff perceptions of workload and work related stress (Cleary 2004, Brennan, Flood et al. 2006). High patient turnover has also been linked to high readmission levels (Heggestad 2001), which, whilst adding to the administrative burden, may also indicate a quality of care issue.

Staffing

In the NHS, nursing teams comprise support workers (bands 3 and 4), entry-level qualified nurses (band five), charge nurses (band six) and ward managers (band 7). In mental health wards, it is commonplace for shifts that cannot be resourced by permanent staff to be outsourced to an agency and filled with temporary staff (also referred to as agency or bank staff). Temporary staff mainly occupy bands three and five. This increases paperwork for permanently employed, qualified nursing staff, because band five staff are required to list the upcoming vacant shifts and then populate the staffing rota with the names of the bank staff who have agreed to work. This involves moving information from the agency system to the internal ward system, which can be time consuming. Band six staff later review those who completed agency shifts so that payments can be processed. Indeed, studies from the wider nursing literature have shown that more unproductive time is generated on wards with high numbers of temporary staff than on wards with permanent staff only (Hurst and Smith 2011).

Staffing also affects how the needs of the client group are met, as many of the daily, core nursing tasks require knowledge of the clients themselves, or knowledge of the affiliated services. Most temporary staff do not have this knowledge. Experts have suggested that these temporary staff with limited site-specific training must decrease the quality of care (Brennan, Flood et al. 2006, Samarasekera 2007, Lintern 2013). Furthermore, there is a widespread expectation that agency staff will work less intensively than those in permanent roles (Brennan, Flood et al. 2006). This may also compromise change delivery. If agency staff are

not working at their full potential and the permanent staff are overstretched, it is questionable whether wards with high numbers of agency staff can be truly considered to be *fully staffed.*

Putting these issues into context, a recent report from the King's Fund raised concerns over the number of temporary mental health nursing staff working in acute psychiatry. In mental health wards, permanent staff nursing numbers have fallen over the last five years by 15%, whilst requests for temporary mental health nursing staff have increased by two-thirds since the beginning of 2013 (Addicott, Maguire et al. 2015). It is therefore possible that staff might be experiencing some negative effects from an increased reliance on bank staff. Permanent nursing staff may view high numbers of temporary staff as a barrier to change because this is likely to decrease the amount of time that they have to deliver innovation. Low staffing levels may affect the stability of the ward climate, and perceived low staffing levels are known to threaten staff morale (Bowers, Allan et al. 2009).

Targets

The standards against which the services were measured were published as seven domains outlined in the Standards for Better Health document (DoH 2004). They included: Safety; Clinical and Cost Effectiveness; Governance; Patient Focus; Accessible and Responsive Care; Care Environment and Amenities; and Public Health. The Healthcare Commission was the regulatory body responsible for an annual health check on each NHS Trust, which was awarded a performance-based rating as a result (HCC 2008). Many nursing staff have expressed concerns that targets which increase paperwork are unrealistic and pressurizing, and detract from their enjoyment of the role (RCN 2015). Another impact of the increase in administrative burden for qualified staff has been has been a reliance on health care assistants to deliver bedside care (Kessler, Heron et al. 2010).

Legislation

Legislative changes also occurred during the study period. A smoking ban was introduced in 2006, and Trusts had to adapt. This affected the Trust under study from 2008 when service users were no longer able to smoke on site. Despite the obvious health benefits associated with not smoking, many detained service users viewed this as an additional infringement of their rights and high numbers of staff felt that no access to smoking could worsen psychiatric symptoms (Jochelson 2006).

A revision of the Mental Health Act (2007) included Community Treatment Orders (CTOs), Independent Mental Health Advocates and Deprivation of Liberty Safeguards. CTOs were intended for service users with a history of disengagement from the services. Their aim was to decrease relapse and readmission rates by recalling patients to hospital for up to 72 hours should they disengage and/or stop taking their medication. However, only the responsible clinician can make the recall by sending a letter to the patient, who should then return

themselves to the hospital (Jackson 2012). This has affected staff on wards because delays to the completion of paperwork can arise both at the weekends and during the night, and the approach relies on a level of co-operation from service users, many of whom are on a CTO due to non-compliance and disengagement. In addition, the admitting service needs to be able to offer a bed, which in many urban areas can prove logistically challenging (Snow and Austin 2009), and increases pressure on in-patient staff to create capacity.

The right to mental health advocacy, which is now provided by Independent Mental Health Advocates (IMHAs), was also introduced in 2007 (Jackson 2012). In practice, this has offered some extra support to ward staff as IMHAs are now able to devote their time to explaining the Act and the rights of those who are detained under it.

Additionally, Deprivation of Liberty Safeguards (DoLS) were introduced to offer a framework for those who lack capacity and require some level of protection. DoLS can be suitable for those with a mental disorder such as dementia or learning disability. In acute in-patient psychiatry DoLS may be relevant if recovery takes a long time (more than six months), and cognitive impairment remains after treatments have been established and maintained. In practice, DoLS applications are time consuming because they are made by ward staff to the local authority. How well ward staff understand the utility of DoLS is also questionable since its use varies widely across the UK (Jackson 2012).

Disinvestment

In 2006, the financial solvency of the NHS was called into question by the King's Fund. After nearly a decade of investment under the Labour party, funding below inflation became commonplace. The Conservative party formed a coalition to govern with the Liberal Democrats in 2010 and between 2011 and 2014, the need for NHS savings of £20 billion was announced.

Morale

Staff who are overwhelmed by administrative tasks have expressed concerns that they lack sufficient time to work therapeutically with clients, a practice that requires having the time to build relationships (RCN 2015). Teo, Yeung et al. (2011), who conducted a study (n=251) of Australian public and non-profit nurses, also found that time stressors led to psychological strain during public sector reform.

Negative consequences for staff working in under-resourced settings should be considered if changes are to be introduced, to improve the chances of changes being successful. Both emotional and psychological responses might be expected to result from the disruptions brought by changes. Indeed, there is some evidence to support this supposition.

Table 2.1: Contextual influences on staff perceptions

Contextual influences:	***How have these changes affected staff?***
Bed reductions:	Increased pressure on mental health wards to meet the demand for beds.
Staffing shortage:	Increasing numbers of temporary staff.
Additional targets:	More administrative tasks for staff, contributing to workload pressure.
Revised legislation:	An increase in administrative tasks for staff.
Disinvestment:	Cuts have led to further bed reductions and frozen staff wages.
Low morale:	The above impacts have reportedly worsened morale.

2.2 Is change disruptive?

2.2.1 Classifications of change

Many people find changes difficult. Perhaps this is why change has fascinated scholars from a wide range of academic disciplines for decades. Whether staff experience change as disruptive might be influenced by the type of change, the amount and by how much control they have over what is happening.

The early organisational change theorist, Lewin (1951), pioneered the term *context free* change so that his change theory could be applicable in any organisational setting. Lewin (1951) also characterized different types of change and recognized that changes could be planned and therefore consciously decided and acted upon, or that they could be impulse driven, accidental, or externally forced.

Later, (Weick and Quinn 1999) coined the terms *episodic* and *continuous* change. *Episodic* change is large scale and transformational; and more likely to occur in established organisations where inertia exists. Impact on the workforce is thought to be high with this type of change because of the shift from established conditions to the unknown. As previously illustrated, this type of change might occur in the NHS as a result of policy changes or new programmes of innovation, and might affect the wider community. By comparison, c*ontinuous* change is operationalized at the local level via updates and ongoing improvements to work processes. In the NHS, this type of change is likely to be visible at the local level and amongst teams.

In my view, one classification of change alone may be limiting when considering an organisation of size, age and complexity such as the NHS. In addition, we also need to consider how staff understand the changes that happen around them. The NHS is routinely in a state of flux as it responds to both political and economic pressures, as well as Trust level governance plans and research programmes for improvement, which are developed through

academic partnerships. For longer-term staff, the endings and beginnings of changes may be somewhat blurred and episodic changes might be viewed by long-term staff as part of a larger continuum.

2.2.2 **Change theories: what drives change and affects its trajectory?**

The trajectory of episodic change is frequently linked to Lewin's (1951) classic, 'three stage' theory, *unfreeze, transition, freeze*, which proposes that change causes uncertainty which creates resistance. The mechanism that underpins this theory is based on a preferred state of organisational equilibrium which is destabilized by innovation and which employees attempt to correct either by obstructing or embracing changes. Since those working within organisations are more likely to thrive on stability, an initial period of uncertainty or *unfreezing,* occurs through a *transitional* process of restructuring in accordance with new values, in order to *freeze,* or integrate innovation. In the shorter term, if change brings disruptions, then Lewin's (1951) theory suggests that negative effects would result.

Schein (1996) adopted Lewin's (1951) standpoint whereby change brings disruption so that individuals either oppose or support changes in order to regain the status quo. Schein's theory takes the perspective of the individual, indicating that responses to change may be driven by individual motives or characteristics. He proposed that employees experience both psychological and emotional states when changes happen, as they unlearn and relearn new work related values. These exert both motivating and restraining forces, which contribute to resistance.

Much of Lewin's (1951) and Schein's (1996) work focused positively on change as a vehicle for improvements, so that by promoting learning, resolving conflict and emphasizing group cohesion, innovation would prevail. However, these theories do not differentiate between systems, explore organisational complexity or delineate the subtle alterations, which might occur because of different types of change.

Van de Ven and Poole (1995) have developed a more complex typology which may be more applicable to the NHS. First, organisations can be conceptualized as entities, comprising different levels across which changes operate. In the NHS, changes may be operationalized at the individual, ward, hospital or organisational levels. Second, the drivers of change dictate which sequence of events they will follow. Changes that follow a continuous evolution, for example, such as change that is motivated by competitive selection in the context of resource scarcity, might follow a process of *variation, selection, retention, and variation.* Changes of this type typically occur globally across the workforce. An example in nursing might be where high vacancy levels have necessitated increased numbers of agency workers leading to overall changes to the nursing population.

Changes which are initiated by a new programme of change or regulation might have a life cycle which follows a process of *start-up, grow, harvest, terminate, and start-up.* Changes, which follow a life cycle, are sequential and linear so that each stage must be achieved in order to progress to the next. As healthcare organisations quite often use protocols and guidelines to deliver new ideas, this type of change sequence is likely to be commonplace. Although Van de Ven and Poole (1995) present other examples, these two serve to illustrate that in a large and complex organisation such as the NHS, it is possible that different types of change may occur simultaneously in one setting, which may affect employees in different ways. In the NHS, it is therefore quite unlikely that a state of organisational stability would be fully regained between large-scale changes.

What are the disruptive effects of change on mental health staff?

As there is no research exploring the disruptive effects of change on mental health staff specifically, the impact is not yet clearly understood. However, Lewin's basic premise, whereby change causes disruption and uncertainty is important. In any setting, a period of change and innovation might negatively affect staff perceptions. This is because adverse effects such as increases in workload pressure and psychological stress may result from change related disruption. In a complex workplace, such as an acute mental health ward setting, it is not clear whether additional workplace stressors might exacerbate this problem. Given the turmoil associated with implementing change, it is possible that innovation could increase instability within this typically volatile setting, which may worsen perceptions for longer than in alternative settings.

Organisational researchers have explored how changes have affected staff in other settings. This may help guide how staff might conceptualise barriers to change and any potential negative outcomes in mental health wards. Rafferty and Griffin (2006) have examined the impact of three different constructs of change: planned, frequent and transformational. This research took place in an Australian public sector organisation, which develops road infrastructure and manages a large road network. Different types of change were compared using items on a survey, which tapped each construct. The relative impact of each type of change on the main outcome, psychological uncertainty, was determined through path analysis. Two cross sectional surveys were collected approximately one year apart. At the first data collection, the Director-General, who had been a popular leader, had been replaced. At the second data collection, large-scale government led reductions had been implemented resulting in redundancies. Planned change was expected to be less stressful for staff than frequent and transformational changes. This is because planning increases certainty whereas frequent changes might create change fatigue, and in addition, transformational changes represent a significant departure from the norm. Rafferty and Griffin (2006) found that planned change significantly decreased psychological uncertainty. There was no association between transformational change and uncertainty, although the authors queried whether this was an

issue of ineffective measurement. Frequent changes were indirectly associated with a reduction in job satisfaction via uncertainty. Transformational change was associated with leaving the company.

To take these results into the NHS, it is quite likely that staff would also perceive high levels of disruption because of changes. It is possible that planned changes could be less disruptive and less stressful for NHS staff than transformational or frequent changes. However, since more than one type of change is likely to occur simultaneously, perceived disruption is still probable. Although Rafferty and Griffin (2006) present informative findings they were not able to determine whether employees perceived a negative effect of changes over time because of the cross sectional design, given the change variables were measured only in survey 1 and not in survey 2. Neither were the changes under study a specific programme of improvements as can occur in the NHS.

2.2.3 **How do systems affect changes?**

In recent years, the study of change has been embraced by the field of implementation science and an appreciation of the intricacy of health systems has emerged. There are a number of multi-level models already in existence, either with a specific purpose in mind, or intended for more general application. Greenhalgh, Robert et al. (2004), Durlak and DuPre (2008), and Damschroder, Aron et al. (2009) have all conducted mapping exercises from extensive reviews of the literature, which attempt to illustrate aspects that might affect the implementation of changes. However, there is little difference between these three models. Each consists of numerous themes and constructs which are grouped in five domains: wider context, the intervention/innovation, inner setting (the system where the intervention will be delivered), all participants (providers and adopters), and the implementation process.

The model proposed by Greenhalgh, Robert et al. (2004) is the most comprehensive because these authors reviewed 106 studies across thirteen research areas both within and outside the healthcare sector. They note nine determinants for innovation uptake in the health services, which include:

1. The outer context
2. System antecedents for innovation.
3. The innovation (feasibility and appropriateness.
4. System readiness for innovation.
5. Adopter.
6. Linkage between the implementers and the adopters.
7. Communication and influence (reflecting the process of change management.
8. Assimilation.
9. Implementation process.

Although not intended as an exhaustive list, these suggestions are presented as a conceptual map for the complex construct of organisational change and innovation uptake in health care. However, of the studies included, none addressed mental health settings directly.

In the USA, the EPIS (Exploration, Preparation, Implementation, Sustainment) model (Aarons, Hurlburt et al. 2011) develops an idea with its origins in the work of Rogers (2003). Rogers (2003) considered that diffusion of innovations in healthcare settings occurs through channels of communication, over time and by increasing numbers of individual adopters. He also suggested that this process is influenced by the social structure of their system. The EPIS model, which focuses on implementing evidence-based practices in publicly funded mental health services for children and families in the USA, has many similarities to the conceptual map proposed earlier by Greenhalgh, Robert et al. (2004). However, it develops their work by identifying inner and outer context variables at four different stages of implementation which include: exploration, adoption decision/preparation, active implementation and sustainment. Aarons, Hurlburt et al. (2011) emphasize the importance of context. They provide a number of examples, including culture, climate, organisational capacity, individual adopter characteristics, receptivity, readiness and ideological fit.

The Promoting Action on Research Implementation in Health Services (PARIHS) framework (Rycroft-Malone 2004) explores the ingredients for the successful implementation of changes from the perspective of general nurses. Although it was originally based on the opinions of UK nursing experts, a subsequent concept analysis and some validity tests have shown that the framework has conceptual integrity, face and concept validity (Kitson, Rycroft-Malone et al. 2008). The model contains three elements (*evidence, context and facilitation*), which are thought to allow the successful implementation of evidence based practice. These elements are conceptualized on a continuum from low to high. When all elements are towards the high end of the spectrum, implementation is more likely to succeed. The authors suggest that innovations will be more successful if they are based on research *evidence*, which is reflective of patient needs and which is widely supported by clinicians. C*ontext* is more favourable if the culture is sympathetic, with sound leadership, and relevant evaluation systems. *Facilitation* is enabled by a suitable change management plan, which emphasises purpose, role, skills and attributes. After using the PARIHS model to support improvements in healthcare, and in response to peer review, an updated version is also available, entitled i-PARIHS. This extends the original and provides more detail, emphasising the importance of those delivering changes, both collectively and individually. In particular, the authors argue that changes are rarely implemented according to guidance, rather changes develop and evolve incorporating both organisational context, and the knowledge and experience of those who work there (Harvey and Kitson 2016).

All these models are effective in conveying the complexities of changes within organisations. However, many implementation scientists have noted that any comparison of the diverse work contributing to this field is somewhat hampered by poor standardization of terms (Kitson, Rycroft-Malone et al. 2008, Weiner, Belden et al. 2011, Powell, McMillen et al. 2012, Cresswell 2013, Powell, Waltz et al. 2015). These multi-level models attempt to simplify and standardise the language used in studies of change and implementation science so that future work might be more readily compared (Damschroder, Aron et al. 2009). In addition, they provide a comprehensive overview of what might affect change at different levels of an organisation as well as highlighting that no part of a system or process operates in isolation from another. In practice, it may not be cost effective or statistically viable to examine multiple obstacles to change at the same time (Greenhalgh, Robert et al. 2004). Clarifying which barriers present the greatest challenges for staff may therefore be important.

Some researchers have suggested that generalised models of implementation might be applied across different health settings (Fixsen, Naoom et al. 2005, Aarons, Hurlburt et al. 2011, Damschroder and Hagedorn 2011). However, this point is debatable. Some features of healthcare working might be generally applied across nursing such as organisational hierarchy, high caseloads of patients, heavy workload, management issues such as poor leadership and low staffing levels (Leiter and Harvie 1996, Cleary 2004, Bowers, Nijman et al. 2011). But, it is quite likely that mental health wards, where little research evidence currently exists, have unique cultures and climates because patients are experiencing mental and emotional distress and are subject to restrictions imposed by the Mental Health Act (2007) (Schoenwald, Carter et al. 2008).

2.3 Inner setting context: what is the impact of mental health ward climate and culture on workforce responses to change?

In the literature, there are differing interpretations of the constructs of climate and culture. Glisson, Hemmelgarn et al. (2012) have suggested that organisational climate and culture are two distinct but associated constructs, within a wider social context. In general it is accepted that organisational climate refers to observable work practices (Langford 2009), whilst organisational culture captures staff values, perceptions or beliefs about the work environment (Schneider 2000, Glisson and Williams 2015). However others, who have studied mental health ward climate specifically, include aspects of both culture and climate, defining ward climate as the overall perceived values, philosophies, social and cultural qualities of the environment (Moos and Houts 1968, Dickens, Suesse et al. 2014).

Staff working in mental health wards might consider that aspects of both ward climate and culture are barriers to change. In addition to the legal and clinical constraints mentioned

earlier, there are also environmental and social features within wards, which may not be transferrable to other settings. Further, the role of mental health nurses is predicated on relationship building and therapeutic interaction, by using both informal and evidence based techniques. Their understanding of the client service side of care, and how treatment affects service users, is specialized. Promoting healthy relationships as well as psychological or emotional well-being may be important to how staff perceive barriers to change. Sociocultural influences may therefore be relevant and the interactions between individuals, both staff and clients, and the ward climate should be a consideration.

For these reasons, a global measure of ward atmosphere such as the Ward Atmosphere Scale, which was developed, by Moos and Houts (1968) for use in psychiatric inpatient settings, may not be suitable if the focus of interest is in understanding these associations. This measure produces a score for each different ward and includes items, which describe general ward issues, activities and interactions. A measure that focuses at the individual level is more likely to yield information about how staff feel about changes in their workplace. This might improve our understanding of how staff respond to both positive and negative innovation experiences, as well as increasing the number of cases. In addition, the Ward Atmosphere Scale (1986) includes 100 items, which is rather lengthy for completion in a busy, acute setting and uses language that some participants may consider dated.

In their recent model Glisson and Williams (2015) outlined how the ARC (Availability, Responsiveness and Continuity) intervention acts on organisational culture, climate and barriers to support and embed innovation. They suggest that the social context of an organisation is an important factor for consideration when developing intervention strategies for new technologies. The unaddressed needs and attitudes of clinicians may present barriers to change that affect clinicians' behaviours. There is also agreement in the field that culture affects behaviour and attitudes, mediated by climate (Aarons and Sawitzky 2006b, Glisson and Williams 2015). If disruption occurs when changes are introduced this may influence a ward's culture and impact on how favourably staff experience their ward's climate. Resistance to change may therefore be characterised by aspects of both culture and climate.

2.3.1 How might ward climate impact psychological safety and influence barriers to change?

Schein (1996) explains the nature of resistance to change and usefully highlights a number of tensions that might arise amongst employees during innovation. To ensure successful implementation, Schein (1996) felt that a suitable environment should be provided by managers for employees, to enable staff to learn and apply the benefits of new changes. This was termed *psychological safety.* Schein argued that learning occurs because of a supportive, non-judgmental work environment. A supportive learning environment is generally understood as being part of a larger organisational climate and social context, where transactions between

people and between workplace and people, facilitate learning (Langford 2009). In a climate with a high level of psychological safety, Schein (1996) argued, employees would be less likely to resist the need for changes. Evidence to support his theory comes from a study of 23 US and Canadian Neonatal Intensive Care units, which found a significant relationship between perceptions of psychological safety at work and staff enthusiasm for quality improvement efforts (Nembhard and Edmondson 2006).

In acute mental health wards, providing a suitable environment for learning may be more problematic because the climate can be volatile. Although the specific features which contribute to ward climate are not clearly defined in the literature, patient characteristics such as violence, risk behaviours and leave status (whether patients are detained or able to leave the ward) are likely to be contributory factors (Kindy, Petersen et al. 2005, N.I.C.E. 2005, Dickens, Suesse et al. 2014). Workplace characteristics such as lack of information, insufficient staff, time restrictions and high workload (Cleary 2004, Price and Baker 2013) may also be relevant. Resistance on acute wards may build from fear and uncertainty both as the result of changes, and as a consequence of environmental instability. If the ward has a culture which is resistant to changes, in the context of these environmental challenges, progress may be hindered.

Violence

A major component of ward climate in mental health care is violence. Whilst reports highlight multiple risk factors for violence, (Binder and McNiel 1990, Owen, Tarantello et al. 1998, Soliman and Reza 2001, Bowers, Hackney et al. 2007), the effects of violence and associated risk factors on how staff perceive barriers to change are not well understood. However, since violence is known to decrease morale and increase stress in mental health nursing staff (McGeorge, Lelliott et al. 2001, Bowers, Simpson et al. 2003, Kindy, Petersen et al. 2005, Currid 2009, Totman, Hundt et al. 2011), it is quite likely that staff will consider violent and disturbed behaviour as a barrier to change. Violence may negatively impact how staff interpret psychological safety on their ward. Indeed, there is qualitative evidence of increased negativity towards changes because of violence in mental health wards (Brennan, Flood et al. 2006).

Managing risk

The individual presentations of admitted patients require different risk management strategies. For example, staff frequently use close observations, where patients are monitored at arm's length, at a ratio of one or two staff to one patient; and these movements are documented every 15 minutes (approximately) thereby increasing the administrative burden. Both high levels of psychiatric distress, and these types of intensive interventions might create a ward environment that mental health staff perceive as volatile and therefore prohibitive of change (Bowers, Simpson et al. 2003, Cleary 2004, Brennan, Flood et al. 2006).

In addition, the Mental Health Act, (2007) produces restrictions that may increase tension if some patients are free to leave the ward and some are not. Those who require a member of staff to escort them on their leave from the ward are frequently frustrated because staff are otherwise occupied. Such restrictions can appear unfair to patients and can contribute to further discord.

2.3.2 Workforce responses: what are the characteristics of culture and resistance amongst mental health nursing staff?

The concept of resistance (whereby staff oppose innovation) requires further examination, given issues of climate and legal context. In the U.K, there are no studies that focus on mental health wards, specifically. It is not yet clear whether a psychologically unsafe climate has any additional impact of on staff perceptions of barriers to change. However, given an acute ward environment is frequently volatile, any additional instability introduced by changes which staff feel are outside of their control are likely to increase resistance.

There is some evidence of resistance to change within mental health systems. In a paper by Sandström, Willman et al. (2015), the PARIHS Framework was qualitatively evaluated in a Swedish mental health system. Data were collected from five politicians, who set the budgets, and 18 healthcare managers, who ran the services. The aim was to examine barriers to the sporadic implementation of evidence-based guidelines. The results demonstrated that the construct of resistance is nuanced. Culture and context were strong themes. Staff who were accustomed to working according to tradition and to ritual were resistant to innovation, expressing some fear and uncertainty of new practices. Senior staff were inconsistent in their approaches to change, and considered that established practices were more trustworthy than new ideas.

A resistant nursing culture towards change is also described in general and pediatric nursing studies. Amongst other, more regularly cited barriers such as lack of time, lack of relevant skills and poor team-working, Sitzia (2002) also found that aspects of nursing culture including ritualistic workplace behavior and limited authority, prevented innovation. Another study showed that in a physician led, pediatric unit where care was delivered according to a strict routine, staff were reluctant to consider new ideas for practice (Scott and Pollock 2008). Therefore, low levels of autonomy may also be linked to resistance.

Powerlessness

Some studies support the idea that poor psychological safety might be associated with a sense of powerlessness amongst staff. Whether ward staff feel that they have autonomy or control over changes may therefore be important in how positively they regard innovation. Manojlovich (2005) conducted a cross sectional investigation in the USA, and demonstrated that structural empowerment, an organisational theme characterised by opportunity,

resources, information and support, directly affected professional nursing practice behaviours. Structural empowerment closely resembles Schein's conceptualisation of psychological safety. Professional nursing behaviours were characterised by the ability to establish and maintain: 1) therapeutic relationships with clients, 2) autonomy, 3) control over the practice environment, and 4) collaborative relationships with clinicians. Nurses who were not empowered by their organisations were more likely to perform isolated tasks mechanically, rather than using their training to make autonomous, informed decisions about patient care. By comparison, in a USA based study of 303 children's mental health clinicians' attitudes to evidence based practice, those who rated their leaders as transformational (i.e. highly motivating and focused on innovation) were more willing to adopt evidence-based practices (Aarons 2006). In addition, Johnson, Brems et al. (2006) have shown that greater reported levels of control and input into changes, directly reduce employee stress.

Demotivation

Schein (1996) argues that motivation and resistance are linked concepts that relate to how staff envisage personal goals. According to Schein (1996), when employees are asked to make changes they must first *disconfirm* current work themes as ineffective. Disconfirmation is accompanied by some level of dissatisfaction or disappointment, which prompts a state of *survival anxiety* amongst the workforce. Survival anxiety is linked with personal accomplishment, or how employees envisage their own work goals and is likely to benefit those who are motivated by a sense of achievement. Staff who experience disconfirmation and survival anxiety together may become motivated to make changes to improve their situation. Clearly, changes will be easier for employees to cope with if they are congruent with personal goals. For those who are satisfied with current work themes, or for those who lack clear work related goals (i.e. who are not motivated at work) then some resistance to changes may emerge.

However, there is more evidence to suggest that demotivation is part of a shared culture of resistance in response to a volatile environment in acute mental health wards. Indeed, motivation was problematic in the City Nurses project, which was an attempt to support inner city acute mental health ward staff in the U.K, to deliver a one-year intervention to reduce levels of containment and conflict (Brennan, Flood et al. 2006). Interactions between change agents and ward staff were reportedly difficult due to low staff motivation, described as a "wall of polite, but paralysing apathy" (p.480). The change agents who worked on the City Nurses project also described how the need to "survive" and "escape" rather than to deliver therapeutic care, was embedded within the culture. Brennan, Flood et al. (2006) argue that this culture may have arisen, partly because of assumptions that change was not possible, hence improvements were difficult, and partly because of policies which focused, sometimes counter-therapeutically, on risk management.

A sense of demotivation may also exist in the mental health nursing workforce as a negative side effect of longstanding deficits in training and support. Interacting with a distressed client group requires complex skills and many direct care staff may have received scant training to equip them for this. Self-preservation, whereby staff attempt to protect themselves from emotional distress, either subconsciously or knowingly, might increase defensive or avoidant practice (Menzies Lyth 1988). This may result in a reduction in the quality and depth of interactions with the client group. If this type of self-protective nursing practice becomes normalised then a culture of avoidance might prevail, leading to demotivation. A demotivated workforce is unlikely to adopt change successfully (Brennan, Flood et al, 2006).

There is some evidence that positive role modelling amongst teams improves staff motivation to embrace changes. In a Norwegian study, how nursing staff (nurses, auxiliary nurses and unskilled healthcare workers) perceived their behaviour towards innovation was assessed. In fact, members of the unskilled health worker group were most likely to adopt changes if their nursing colleagues were also demonstrating that behaviour (Amo 2006). This suggests that in a unit with a strong, positive culture towards change, implementation success can be achieved. Team culture for those who work in mental health settings may differ from other healthcare settings because a high degree of cohesion and cooperation is required to manage challenging behaviour. The need to maintain functional social relationships with colleagues, given the high incidences of violence, may mean that social desirability, and maintaining the status quo, is more important to staff than task orientation. If the culture within a unit is predisposed to negative attitudes to innovation then the majority may conform to this way of thinking, thereby decreasing motivation.

Confidence

Change is likely to bring an increase in workload and staff may view this as a challenge, which may affect confidence. Indeed, Schein (1996) suggested that acting against the emergence of survival anxiety is a state termed *learning anxiety,* which may be linked to confidence. According to Schein (1996), underlying learning anxiety is a fear of being, or appearing to be incapable or inadequate, and a contributory factor to resistance.

Although there are no specific studies examining how the confidence of mental health nursing staff might affect the outcomes of changes. Martin, Jones et al. (2005) have used the theory of Lazarus and Folkman (1984) to develop a model which characterises adjustment to change as an employee response to organisationally induced stress. Lazarus and Folkman (1984) suggested that when individuals experience psychological stress, which is the product of a transactional interaction between them and their environment, there follows a cognitive and affective appraisal of their situation. When applied to changes, these may either be positive and appraised as a challenge, or negative and appraised as a threat, before adjustment can commence. Staff who regard changes positively, may have more confidence. However, it is

quite likely that introducing instability through changes to an acute ward work environment, which is already known to be stressful for staff (McGeorge, Lelliott et al. 2001, Bowers, Simpson et al. 2003, Kindy, Petersen et al. 2005, Currid 2009, Totman, Hundt et al. 2011), will have a negative effect on confidence in some individuals.

2.3.3 Negative outcomes of innovation: the impact on job satisfaction and burnout

In nursing studies, low staff morale, measured as burnout and poor job satisfaction, has been associated with the stress of working on a ward (Severinsson and Hummelvoll 2001, Cleary 2004, Fourie, McDonald et al. 2005, Ward and Cowman 2007, Seed, Torkelson et al. 2010). Indeed, in a recent large scale (N=2258) study of morale amongst the English mental health workforce, 49% of staff from acute wards were found to meet the threshold for burnout, according to the emotional exhaustion subscale of the Maslach Burnout Inventory (Johnson, Wood et al. 2010).

Staff apathy and burnout have also been identified as potential barriers to the implementation of cognitive behavioural therapies for service users by assertive outreach teams (Williams 2008). In addition, poor work empowerment has been linked to low job satisfaction in several studies of nurses in both general and mental health wards (Laschinger, Finegan et al. 2001a, Laschinger, Finegan et al. 2001b, Lautizi, Laschinger et al. 2009). The literature also suggests that when mental health staff feel that they have no voice within the wider organisation, morale is threatened (Totman, Hundt et al. 2011). Furthermore, a disempowered workforce is more likely to develop symptoms of burnout (Leiter and Spence Laschinger 2006, Manojlovich 2007).

The detrimental outcomes of changes

Previous implementation research conducted in children's mental health services, has shown that organisational climate (or how staff perceive and respond to their work environment) affects job satisfaction (Glisson and James 2002, Aarons and Sawitzky 2006a, Aarons and Sawitzky 2006b). Poor job satisfaction has also been highlighted as an outcome in staff who were less open to changes (Wanberg and Banas 2000), and this has also been demonstrated within the wider nursing literature (Kuokkanen, Suominen et al. 2009). In contrast, in the context of a large Australian public hospital where staff were experiencing the introduction of large-scale organisational change; Martin, Jones et al. (2005) found a work supportive work environment (where staff had positive relationships and experienced good patient care) led to better job satisfaction.

In a UK study Gulliver, Towell et al. (2003) found that job satisfaction declined amongst nursing staff whilst burnout increased after mental health and social services were integrated. There is also evidence that attitudes to implementing evidence-based practices worsened in the presence of burnout (Aarons and Sawitzky 2006); whereas increased commitment

towards organisational change has predicted a decrease in work related burnout (Wallin, Ewald et al. 2006).

2.4 Staff characteristics

2.4.1 Occupational Status – how might staff perceptions differ?

Studies that directly explore any effect of occupational status on perceptions of change in hospital wards are scarce. In the wider literature, Haar, Spell et al. (2005), found that occupational seniority predicted a positive response to a new policy in a local government organisation in New Zealand. In the NHS, Benn, Burnett et al. (2009), who evaluated the impact of a patient safety initiative in an inner city general health setting, also found that senior staff reported more positive changes than those on the front line. In mental health wards, it is therefore plausible, that staff who occupy managerial roles may view changes more optimistically than their junior colleagues may.

Why might direct care staff have negative views of change?

In his meta-analysis of organisational innovation, Damanpour (1991) showed that centralization had a negative effect on innovation, as it is likely to stifle innovativeness, decrease employee awareness and reduce organisational commitment. This may be relevant in healthcare settings because changes are often cascaded from the top down.

Innovation which is driven by those in senior positions may fit poorly with the priorities and values of those in junior positions (Klein and Sorra 1996). Senior staff may be more positive, in part, because they are consulted, and are therefore more invested in upcoming changes. Procedural justice theories, which describe the amount of perceived control that individuals have over processes that determine organisational outcomes, may also be relevant in health settings. In mental health nursing, perceived unfairness might arise if staff feel that changes are irrelevant, unfair on them or do not meet the needs of their client group (Greenberg 1987, Greenberg 1990). This may increase staff negativity. Further, centrally derived changes may fail to incorporate the knowledge, skills and ideas of those in direct care roles. Hence, direct care staff may view such changes as unrealistic or unfeasible because the practicalities of delivery have been ignored.

Occupational status differences may also result because those at the direct care level may not be aware of what motivates changes that are decided centrally, and may therefore not fully appreciate their scope or relevance. Indeed, Benn, Burnett et al. (2009) found that senior staff were able to comment on the global impact of changes, whereas front line staff only commented on local level issues. There may also be different considerations for the two different staff groups. This is supported by the results of a small, qualitative study of 16 acute ward nurses, where differences were observed in how senior and junior staff viewed upcoming plans for nurse prescribing in mental health settings. Junior staff were concerned about the

medicalization of their role, paperwork and training. Senior staff felt that increased responsibility would create anxiety amongst junior staff (Price and Baker 2013).

In two further studies where reforms were implemented using a top down approach, over which front line staff had little control, there were negative outcomes of increased stress, reduced job satisfaction, reduced psychological well-being and lower motivation amongst nurses (Diefenbach 2009, Teo, Yeung et al. 2011).

2.4.2 **Age**

In the mental health nursing workforce as at 30th April 2016, staff ages ranged from 18 to 77 (HSCIC 2016). Given age alters perceptions of the working environment due to additional experiences of social, political and economic factors (Inkeles, Coleman et al. 1975), it is possible that differences may exist in the opinions of older and younger staff. Although there is little evidence to support this in the health literature, the wider literature suggests that younger age groups may be more likely to try new strategies (Vroom and Pahl 1971), or bring more newly acquired knowledge increasing the likelihood of innovation (Bantel and Jackson 1989). In a US study of pediatric hospital nurses, those who were older and more experienced described more job satisfaction and confidence, and less job related stress (Ernst, Messmer et al. 2005).

2.4.3 **Education**

In a sample of children's mental health staff in the USA, those with higher educational attainment had more positive responses to evidence based practice (EBP) changes while those with greater clinical experience (i.e. a longer length of employment), responded negatively to new approaches, compared to interns who were more open towards change (Aarons 2004). Higher educational attainment has also been positively related to how staff regard EBP in other studies (Strickland and O'Leary-Kelley 2009). However, it is not clear whether this is true in acute mental health nursing in the UK, which includes many staff who are not degree educated.

2.4.4 **Ethnicity and gender**

Although there is little information in the health literature there are some mixed findings in the wider literature on ethnicity and gender effects. In a report, which examined workforce trends in the USA and not innovation directly, Baugh and Graen (1997) found that teams with mixed gender and racial diversity were considered less effective, in terms of performance. However, Van der Vegt and Janssen (2003) found that innovative behavior was enhanced in teams with heterogeneous characteristics across the themes of racial diversity and gender. In nursing the population is diverse with a very large majority of women, but the roles of gender and ethnicity in how staff perceive change, remain unclear.

2.5 How might change influence staff perceptions of barriers to change within the wider ward context?

It is clear from the literature that there are a number of themes which might feed into how staff perceive barriers to change on acute wards: i) the wider context; ii) the disruption that is associated with change itself; iii) the inner setting context, which may be influenced by both ward climate and culture; and iv) individual characteristics. It is plausible that the daily working routines and environment (i.e. the inner context, or ward climate and culture), and the characteristics of individual staff may have the greatest influence on how staff perceive change, given they have a direct impact. When delivering standard care, ward climate and culture are likely to provide some explanation of how acute ward working affects nursing staff. In busy mental health wards, if staff have negative perceptions of barriers to change, these may relate to incidents of violence, workload intensity, an unwell client group who require intensive nursing intervention and inadequate staffing levels. If the level of disruption is increased, which may be a consequence of innovation, it is likely that these negative inputs may intensify and worsen staff perceptions of barriers to change. In addition, variations in perceptions may exist in different staff groups. For example: younger staff, those with higher educational status, and those in more senior positions may be more optimistic about innovation.

Perceptions of barriers to change might capture an underlying resistance characterised by powerlessness, low confidence and demotivation. Given poor psychological safety describes limited support when changes are implemented and is likely to increase resistance, it is conceivable that powerlessness, low confidence and demotivation could tap aspects of psychological safety, within the barriers to change construct. Psychological safety, being a component of organisational climate, is also likely to be linked to ward climate; so that if staff have a pessimistic view of changes, then their perceptions of ward climate will also be negative.

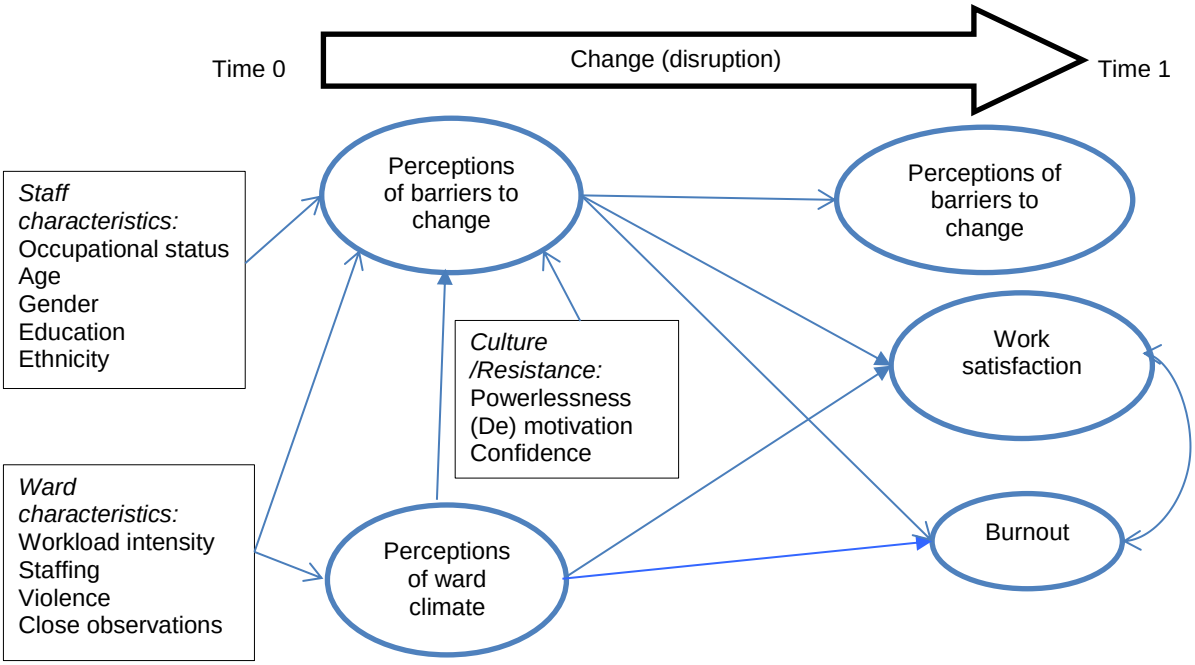
If disruption has an adverse effect on how staff perceive change, there may be additional unwanted consequences, because work satisfaction and burnout may also worsen.

2.6 Research methods for studying organisational change

There is a commonly held view that change effects should be explored using a range and combination of research methods as any single method of inquiry may prove restrictive and offer only a partial account of events (Diez-Rouz 1998, Eccles, Armstrong et al. 2009). In this research, mixed methods are used. Qualitative methods, underpinned by a stakeholder involvement perspective, will allow an exploration of how staff perceive barriers to change. Quantitative methods will contribute to measure development and model testing.

The DOORWAYS trial will use measures of ward climate (VOTE) work satisfaction and burnout. Using these relevant measures, and drawing from the literature, I developed and propose to test the following model (figure 2.1), which describes how change and aspects of ward working life might affect perceptions of barriers to change (chapter 8). I will develop and psychometrically test the new VOCALISE measure for use in this model. It is likely that other relevant factors which affect how staff respond to change (e.g team climate, leadership) exist. However, it will not be possible to include additional measures in DOORWAYS.

Figure 2.1: A model of the potential associations between perceptions of barriers to change and the wider ward context over a period of innovation



2.6.1 Why might stakeholder involvement/participatory methods be important in furthering the field of implementation science?

In the UK, translational research theory has emerged to address concerns over the uptake of evidence into practice (Thornicroft, Lempp et al. 2011). In the translational model there are four phases, but only phases 3 and 4 (late clinical trials and the implementation phases) require active stakeholder engagement of healthcare professionals. The translational model suggests that any healthcare products under development, with the potential to improve health outcomes, will be accepted and adopted by the end user. However, this assumption does not address how people, either within the NHS workforce, or within the service user population, might respond to these new products.

Stakeholder involvement in the form of service user-led, participatory methods have already been successfully used to develop patient centered, psychometrically sound outcome measures (Rose, Sweeney et al. 2009, Evans, Rose et al. 2012). Measures are developed from the direct participation of service users who contribute their experiences of the topic

under study. Service user researchers collect, transcribe and analyze data so that item content accurately reflects service user perceptions of their experiences in healthcare. The idea of stakeholder participation might also be used in measure development to further the field of implementation science (Callard, Rose et al. 2012).

Nursing involvement in measure development might yield items with a broader content domain than could be generated from a review of the literature alone, since nursing staff have expert knowledge of their specialist areas. The literature is anyway limited in terms of the direct relevance to mental health nursing. The wider literature suggests that there may be potential psychological and emotional barriers to change which may contribute to resistance, as well as the more tangible environmental ones. To achieve a full understanding of these issues, it will be important to access a diverse sample of ward staff, particularly since this may be an uncomfortable topic for staff to describe. The overall aim through nursing stakeholder participation will be to produce a measure that is accessible, relevant and appropriate for staff, with good psychometric properties.

2.6.2 **Testing the model**

Measures of perceptions of barriers to change

In order to test the proposed model (Figure 1) a psychometrically sound measure needs to be developed that captures mental health ward staff perceptions of barriers to change as none are currently available. There are three main arguments that underpin the need for a specific barriers to change measure.

First, most current measures of change take a global perspective, with items that address organisational or setting level issues. Since there may be associations between a complex mental health ward setting and staff responses to change, which require deeper exploration, individual level responses may also be important. As discussed in relation to the measurement of ward climate, measures that take a global perspective are unlikely to reveal emotional or psychological workforce responses. However, since improvements depend on workforce engagement and whether staff are willing to participate, gauging workforce sentiment towards changes at the individual level, as well as the more practical aspects of implementation, may yield more useful data.

Second, many of the measures in existence were developed in the USA, where a different system of healthcare is operated, or to measure the impact of evidence based research findings. Given the importance of context and the likelihood of setting specific barriers, it will be important to explore perceptions of barriers to change in detail, from the perspective of acute mental health ward nursing staff.

Third, no measure has been developed with input from those who will be expected to implement the intervention. This oversight may explain why the emotional and psychological responses of staff to changes have been overlooked. Taking the perspective of nursing stakeholders into account is likely to improve how accurately the measure reflects the realities of implementing changes in mental health wards.

Measures of perceptions of ward climate, work satisfaction and burnout

Since ward climate is a feature of ward working life whether or not changes are in progress, it will be more useful to consider ward climate and barriers to change as distinct constructs and to look at their associations. A challenging ward climate may produce negative staff responses to change which hinder implementation and re-enforce negative aspects of the ward climate and barriers to change.

The Views of the Therapeutic Environment measure (VOTE) captures nursing staff perceptions of the daily stressors of acute ward working and so will be used to capture some of the ward climate characteristics shown in the model (Laker, Rose et al. 2012). Additional ward-level data on incidents, close observations, and detention will supplement this measure.

The Index of Work Satisfaction (IWS) will provide a suitable outcome measure for exploring positive or negative outcomes following change and the effect of perceptions of barriers to change and ward climate. This draws from the literature, which suggests that staff who are not open to changes have reduced job satisfaction (Wanberg and Banas 2000). There is also evidence that the stress of working on a ward is linked to dissatisfaction at work (Severinsson and Hummelvoll 2001).

The Maslach Burnout Inventory (MBI) was chosen to explore the relationship between perceptions of barriers to change, ward climate and burnout because it measures burnout in staff with high levels of staff-client interaction (Maslach, Jackson et al. 1996). Ward staff may experience burnout in response to the emotional requirements of their client group, and this may affect how they perceive barriers to change.

Quantitative approaches

Randomised controlled trials have long been considered the gold standard in evaluating complex interventions (Campbell M, Fitzpatrick R et al. 2000, Craig, Dieppe et al. 2008). However, few studies exist that use robust designs to evaluate interventions that improve healthcare performance (Parmelli, Flodgren et al. 2011, Glisson and Williams 2015). The studies in this thesis will are conducted within the context of a randomised controlled trial design that reduces bias in the results.

Given the proposed model is complex, and attempts to capture both individual level predictors of barriers to change as well as some mental health ward context, multi-level modelling will be adopted. There is some possible overlap between the constructs of perceptions of barriers to change and ward climate, and this approach will allow all the constructs to be included, (although it will be necessary to do this in stages), so that shared variance can be assessed. Interactions between variables can also be considered using this method of analysis.

Studies that explore the link between barriers, implementation and outcomes are also rare (Kajermo, Bostrom et al. 2010). Having longitudinal data will therefore be important as this will allow an assessment of the impacts of changes over a period of innovation.

2.7 Current measures of change and implementation

There are a number of measures of implementation climate, readiness for change and barriers to change (in other settings). None of these measures are suitable for use in a mental health ward because none have been developed for use in this setting, which has both unique characteristics, as well as service limitations. These wards have climates that fluctuate because: 1) they provide care for people experiencing psychosis; 2) they operate a locked door system 3); there is rising pressure for beds; and 4) there are insufficient staff. Neither have any measures been developed using a stakeholder-led approach. However, these measures may further inform the content of the barriers to change construct. In addition, given organisations are multi-dimensional, a review of these measures may enhance our understanding of the operationalism of the barriers to change construct. In the next section, the current measures of change and implementation are discussed, and their unsuitability is summarised in table 1.

2.7.1 **Implementation Climate**

The implementation climate construct captures whether an innovation is prioritised for implementation by the organisation, by employees and by managers (Klein and Sorra 1996, Klein, Conn et al. 2001). Working on the basis that it is the shared perceptions of employees that enable changes to succeed, Klein and Sorra (1996) argued that implementation climate should be measured at the organisational level as it takes a global perspective.

In the field, Klein, Conn et al. (2001) have shown that implementation climate is predictive of change. They also tested the relationship of implementation climate to other organisational level constructs and showed that implementation climate mediates the relationship between management support and innovation uptake.

The implementation climate construct is interesting as there may be some overlap between this and how staff perceive barriers to change. For example, it is quite likely that both poor management support and badly prioritised change might be characterised as barriers to

change by staff without the need for separate measures. However, by design, implementation climate is a global construct which captures organisational intentions towards change, across 3 specific areas which tap how much innovation is i) prioritised, ii) supported, and iii) rewarded. Taking a high-level view of barriers to change may not yield sufficient detail in mental health wards, given this setting is complex. There may be other barriers to change which arise because of employee relationships (Boaz, Baeza et al. 2016), which may be better measured as individual perceptions.

2.7.2 **Measures of implementation climate**

Implementation climate measure

Jacobs, Weiner et al. (2014) have examined the implementation climate construct by developing a measure based on the original definition by Klein and Sorra (1996). It has 12 items on how much innovation is prioritised, supported, and rewarded. Using this measure, they demonstrated that implementation climate operates at a group level if employees work closely. If staff are dispersed and practising independently, there may be less agreement and less justification for aggregating the scores. This highlights the importance of context, and tailoring the barriers to change construct within the setting will be important. Further, it is clear that a reasonable degree of within group agreement between ward staff will be required if the barriers to change construct is intended to indicate an overall ward opinion (Weiner, Belden et al. 2011).

Jacobs, Weiner et al. (2014) also showed that for those physicians in their study who worked more independently there was a high degree of correlation between individually referenced and group referenced items. For those working in teams, individually referenced items were only slightly correlated to group referenced items, and may therefore be measuring different, but associated constructs. These authors argue that in a close working group individuals may have a greater awareness of how their perspective differs from those of their teammates. Hence, if the intention is to capture a group construct, as in the case of the implementation climate construct, group referenced items may be preferable. In the case of the barriers to change construct, which will be motivated by stakeholder-led data, it will be useful to explore whether the personal perspectives of staff, which may produce both individually referenced and group referenced items, contribute to a measure that is suitable for examining the ward as a social context. Further, a measure with a high number of individually referenced items may be more predictive of workplace outcomes, which also take the perspective of the individual into account.

The Implementation Climate Scale: ICS

To explore the role of the organisational context on implementation outcomes, Ehrhart et al (2014, 2016) have developed an 18 item measure of implementation climate (The Implementation Climate Scale: ICS). This will not be suitable as it was designed for use in

children's mental health and welfare settings, and is an organisation level scale. However, it is interesting to note that exploratory factor analyses produced six dimensions which included 1) focus on evidence based practice (EBP), 2) educational support for EBP, 3) recognition for EBP, 4) rewards for EBP, 5) selection for EBP, and 6) selection for openness. Both total score and subscales had high internal consistency, although no test-retest reliability study was undertaken. Although this measure is brief, it contains more detail than previous implementation climate measures. However, it is worded very specifically around whether evidence based practice will be adopted, and does not address how clinicians feel about changes and their impact.

2.7.3 **Implementation Readiness**

In the literature, implementation climate is linked to *implementation readiness*, a term that describes specific indicators of an organisation's commitment to implement innovation (Damschroder, Aron et al. 2009). Implementation readiness is intended to capture global, organisational level information. However, staff perceptions of barriers to change might include some of the implementation readiness construct, which is focused on pre-change stages of implementation.

2.7.4 **Measures of implementation readiness**

Organisational Readiness for Change (ORC)

The Organisational Readiness for Change measure (Lehman, Greener et al. 2002), was drafted from previous organisational climate scales and the literature (see table 1). It has 115 items across 18 content domains including: 1) program needs for improvement, 2) immediate training needs, 3) pressures for change, 4) offices, 5) staffing, 6) training, 7) computer access, 8) e-communications, 9) growth, 10) efficacy, 11) influence, 12) adaptability, 13) mission, 14) cohesion, 15) autonomy, 16) communication, 17) stress, 18) change. These were grouped into four predetermined scales and the authors argued against the need for a factor analysis, on the basis that the overall measure is unidimensional. Tests of reliability showed mixed results for the internal consistency with eight being unacceptable (Cichetti and Sparrow 1990, Cichetti 1994), suggesting that the measure was not unidimensional. Validity testing showed interesting variations in how different groups of staff perceived implementation readiness, because directors had more favourable views than clinical staff. The scale was correlated with other organisational measures including treatment process and organisational environment, which indicates convergent validity. Although aspects of this measure such as stress and staffing (which have already been discussed) may be relevant, it is rather lengthy and therefore it is unlikely to be suitable for an acute inpatient ward where staff are under great time pressure.

Organisational Readiness for Implementing Change (ORIC)

The Organisational Readiness for Implementing Change measure (Shea, Jacobs et al. 2014, Shea, Reiter et al. 2014) was developed from a theory of organisational readiness for change by Weiner (2009). To reflect the complexity of the construct (Weiner, Belden et al. 2011, Shea, Jacobs et al. 2014), the measure is split into two parts. Part one encompasses the following themes: change commitment and change valence (perceived benefit, perceived timeliness, and perceived compatibility). Part two includes: change efficacy, task knowledge, and resource availability. This measure usefully focuses on collective (group) readiness for implementing change, and describes factors that might motivate participants at the beginning of a period of change (Shea, Jacobs et al. 2014, Shea, Reiter et al. 2014). However, as previously, the items are group referenced, which may not provide enough detail for use as a barriers to change measure. The ORIC measure was tested for its psychometric proprieties using factor analysis, intra-class correlations and Cronbach's alpha, using data from 140 study participants. The authors conclude that ORIC has good reliability (strong within group agreement per item and high alphas for each scale). Construct validity was shown because the structure of the measure was verified using confirmatory factor analysis. However, this is questionable given the small sample used to conduct both exploratory and confirmatory factor analyses.

The Evidence-based Practice Attitude Scale

The Evidence-based Practice Attitude Scale (Aarons 2004) is a 15-item scale with generally good psychometric properties although one subscale had an unacceptable reliability (Cichetti and Sparrow 1990, Cichetti 1994). It has four domains including: 1) requirements (the likelihood of adopting EBP as required); 2) appeal (the intuitive appeal of evidence based practice); 3) openness (staff openness to new practices); and 4) divergence (how far removed research-based/academically developed interventions are from usual practice). Again, this measure was not developed for use in U.K. mental health wards and is therefore not suitable.

2.7.5 **Measures of barriers to research uptake**

Several measures have been developed in general healthcare settings. These focus on the uptake of research into clinical practice by health providers and nurses (Funk, Champagne et al. 1991, Van Mullem, Burke et al. 1999, Olade 2003, Aarons 2004, Hutchinson and Johnston 2004, Upton and Upton 2006, Melnyk, Fineout-Overholt et al. 2008, Ofi, Sowunmi et al. 2008). In general, these measures focus on whether published research is read and adopted by clinical staff, and do not address barriers to changing workplace practice. Their utility may be limited and only the most commonly used measure is therefore discussed.

The BARRIERS measure.

The BARRIERS measure captures barriers to research uptake in nursing, and has been widely used in research (Funk, Champagne et al. 1991). However, this measure does not

focus on making changes generally, or on how staff handle innovation. An example item reads "The statistical analyses are not understandable" However, some items tap organisational barriers that may inform how staff perceive barriers to change. These include administrative burden, uncooperative or unsupportive colleagues, insufficient time, inadequate facilities and lack of autonomy. These characteristics of the setting are commonly cited in studies of barriers to research utilization, in both mental health, paediatric and general healthcare settings (Kajermo, Nordstrom et al. 1998, Nolan, Morgan et al. 1998, McCleary and Brown 2003, Carrion, Woods et al. 2004, Strickland and O'Leary-Kelley 2009).

The authors provide evidence of construct validity and adequate test retest reliability (n=1,989) for this scale. Despite 45 published papers using the BARRIERS measure, there have been only two studies using longitudinal methods (both pre-test, post-test design) (Bobo 1997, Fink, Thompson et al. 2005). In both, staff received interventions to increase use of evidence-based practice, and nurses' perceptions of the barriers to using evidence-based practice improved at follow-up. It is clear that more work with a longitudinal focus is required to inform whether nursing perceptions improve through service developments (Carlson and Plonczynski 2008). However, BARRIERS is heavily focused on whether nursing research is read, is of good quality, is accessible and whether it is then used in practice. It does not address how staff cope with general changes. In addition, there have been concerns over the construct validity of this measure (Kajermo, Bostrom et al. 2010), because 13 studies have conducted a factor analysis with wide variation in the results.

2.7.6 **Measures of barriers to general changes**

Three existing measures capture perceptions of barriers to general changes. However, one was only two items and had no reported psychometric properties (Johnson et al, 2006). The second is specific to general healthcare, was developed in Dutch, and does not translate well into English (Peters et al, 2002).

The third was developed in the USA. It comprises 24 items developed from the literature, which capture different beliefs that employees might have about organisational change but was not developed for a healthcare setting (Armenakis, Bemerth et al. 2007). The use of language may also require substantial adaptation to be used in UK health setting, given an example item is: The top leaders in this organisation are "walking the talk" (Armenakis, Bemerth et al. 2007).

Although, the measure lacks setting specific context, some relevant issues are included such as discrepancy (the need for change), appropriateness (fit to the setting and those involved), efficacy (self-belief in ability to effect new changes), principal support (from change agents and leaders); valence (how attractive the outcomes of change are to individuals). Psychometric tests with employees of a manufacturing plant and students from a University

(see table 1), showed generally good internal consistency, with only one unacceptable alpha (Cichetti and Sparrow 1990, Cichetti 1994). Evidence of content and construct validity is also presented.

2.7.7 **Summarising the current measures of change and implementation**

The content validity of the implementation readiness and implementation climate measures is questionable, given each of the measures described differs in its content. This either suggests that more work is required to hone each construct, or that each organisational setting has different properties that need consideration. It is not likely that the domains included in these measures are sufficient to capture how ward staff experience change, although some aspects of each may be useful. In addition, more work is required to understand whether differentiating between individual level items and organisational level items is important to the construct. Although some measures show generally promising psychometric properties, only Funk, Champagne et al. (1991) include tests of temporal stability. This information would be useful to consider for measures of employee beliefs, which may change over relatively short periods. Further, the methods used to generate items for the current bank of measures varies. In some cases, they were decided within the research team based on the literature. In others, healthcare experts provided advice.

Table 2.2: Current measures of change and related constructs

Author	Measure	How was it developed?	Items	Setting	Problems for use in this research
i. Jacobs, Weiner et al. (2014)	Unnamed implementation climate measure.	Expert knowledge of research team.	12	Developed for general use and psychometrically tested in: 1. The National Cancer Institute's Community Clinical Oncology Program (n=47); (a research network that conducts clinical trials in USA). 2. City based youth-serving agencies; medium-sized Midwestern city, (n=26); USA.	Not developed for use in a mental health ward. Development not stakeholder led. Differing results according to setting so it is not clear whether this construct would be operational as a group or individual level construct in a ward setting.
ii. Ehrhart et al (2014, 2016).	The Implementation Climate Scale: ICS.	Literature review. Consultation with senior subject matter experts. Items then reviewed by 4 mental health program managers.	18	Children's mental health and welfare settings, (=630), USA.	Not developed for use in a mental health ward. Some user involvement, but development not explicitly stakeholder led. Some useful themes, but a global implementation climate construct may lack sufficient detail.
iii. Lehman, Greener et al. (2002).	Organisational Readiness for Change: ORC.	Previous organisational climate scales and the literature.	115	Treatment units for people with addictions; (n=458); North and South Central states and Texas, USA.	Not developed for use in a mental health ward. Development not stakeholder led. Large number of items may prohibit use in acute wards. Some useful themes, but a global implementation climate construct may lack sufficient detail.

iv.	(Shea, Jacobs et al. (2014), Shea, Reiter et al. (2014))	Organizational Readiness for Implementing Change: ORIC.	Initial measure developed from theory and the knowledge of the research team. Then, a large group of university graduates (n=98) completed surveys to assess whether the measure's items seemed representative of the construct's theoretical content.	12	Undergraduate, masters, and doctoral university students, (n=98, n=140), USA.	Not developed for use in a mental health ward. Development not stakeholder led. Some useful themes, but a global implementation climate construct may lack sufficient detail.
v.	Aarons (2004)	Evidence-based Practice Attitude Scale Aarons (2004)Aarons (2004)Aarons (2004)	Literature review Consultation with mental health service providers, and child and adolescent services researchers	15	Children and adolescents mental health services, USA (n= 322).	Not developed for use in a mental health ward. Development not stakeholder led. Some useful themes, but a global implementation climate construct may lack sufficient detail.
vi.	(Funk, Champagne et al. 1991)	BARRIERS	Literature review. Lists of items developed, then refined and reduced with expert input from research utilization consultants, nursing researchers, practicing nurses, and a psychometrician.	29	Developed for use in general healthcare and psychometrically tested using a sample of nurses (n=1989) who were members of the American Nursing Association.	Not developed for use in a mental health ward. Development not stakeholder led. Measure is focused on barriers to use of research in practice and omits how staff

			Final instrument was pilot-tested with graduate nursing students			might respond to more general changes.
vii.	Johnson et al (2006)	Unnamed	Expert knowledge of research team	2	Used at four mental health (*n*=663) and four substance abuse (*n*=256) treatment agencies, in the USA.	Not developed for use in a mental health ward. Development not stakeholder led. Only two items were used to measure changes, so the scope of this measure is insufficient.
viii.	Peters et al (2002)	Barriers and facilitators assessment instrument	Literature review and expert panel	27	Developed in the Netherlands for use in preventative care.	Unsuitable items.
ix.	Armenakis et al (2007)	Organisational Change Recipients' Beliefs Scale	Literature review	24	Developed in the USA for general use. 1. Graduates (n=19) from MBA program at a major south-eastern University. 2. Medical Division (MD) of a not-for profit research company (n=117). 3. Durable goods manufacturer (n=117). 4. Public Safety Organisation (public sector, n=247).	Not developed for use in a mental health ward. Development not stakeholder led. Unsuitable language.

2.8 Summary

In acute mental health settings, the literature shows that despite advances in research knowledge, there has been little improvement in the important area of therapeutic engagement on acute in-patient wards (Csipke, Flach et al. 2013). To date, the effects of poorly managed changes on the workforce have been overlooked in the U.K., and nursing staff perceptions of barriers to change are not well understood. Neither the emotional and psychological health of the workforce in relation to planned change, nor their response to a challenging ward climate and/or culture has been adequately investigated. These potential interactions need exploration in order to guide more successful implementation.

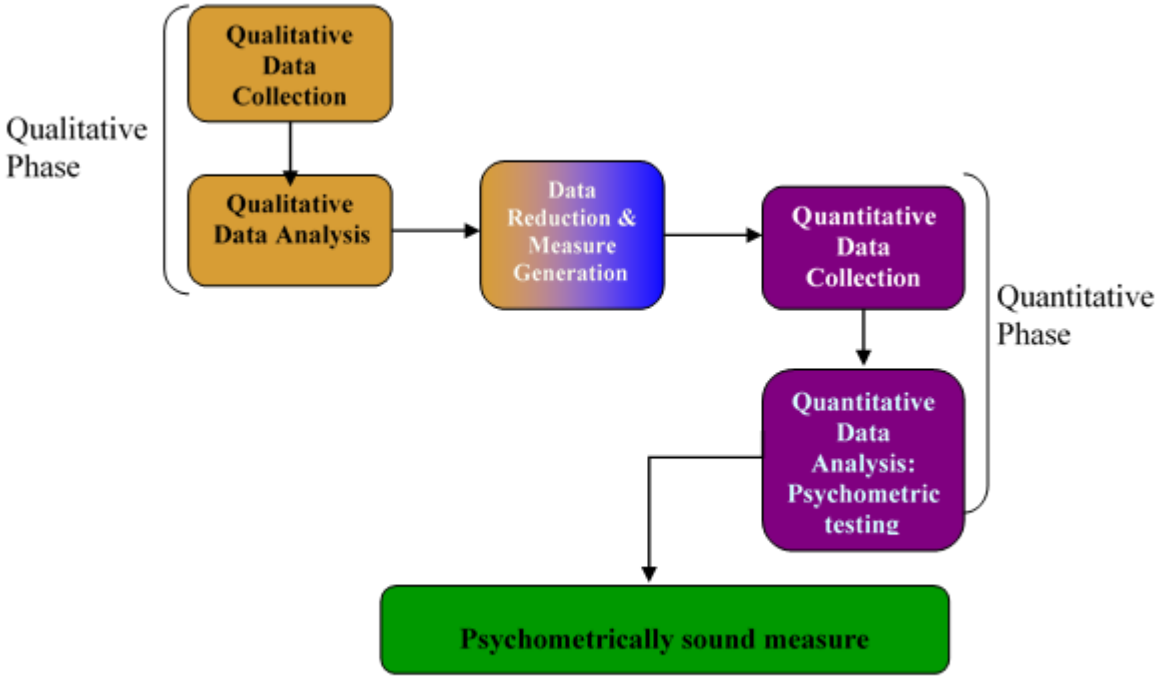
Measuring the impact of organisational changes on mental health acute ward staff will require the development of a new tool, which captures staff perceptions of barriers to change. This will be the first stage of this thesis. A measure which accesses nursing staff perceptions directly to illuminate their responses to change may aid service developments to improve patient outcomes (Armenakis, Bernerth et al. 2007). It is not yet clear whether adverse outcomes arise for staff because of the disruption that changes bring. If there are wider effects within wards when changes are difficult, outcomes such as job satisfaction and burnout may also be affected. These issues will be investigated in later chapters.

Chapter 3 : Using participatory methods to develop a measure of ward staff perceptions of barriers to change

3.1 Introduction

This chapter outlines the methods used to develop and test VOCALISE, a measure of perceptions of barriers to change. The process of measure development used mixed methods and drew from a sequential exploratory model described by Cresswell (2013). Qualitative data were collected initially, which were analysed to inform the content of the items in the measure. Then a combination of qualitative and quantitative methods were used to reduce the number of items in order to generate a final measure. Finally, quantitative data were collected using the new measure in a process of psychometric testing. A flow diagram of the process is presented in figure 3.1.

Figure 3.1: The qualitative and quantitative process of measure development



The strategy for psychometric testing was adapted from the Health Technology Assessment programme (HTA) (Fitzpatrick, Davey et al. (1998). It includes feasibility, reliability, interpretability, precision, acceptability and validity. The criteria of involvement and importance, which are recommended in the assessment of measures developed, using stakeholder involvement, were also considered in the qualitative phases (Harvey, Langman et al. 2005, Rose, Sweeney et al. 2009).

3.2 Ethical approval

This project was conducted in the South London & Maudsley NHS Foundation Trust (SLaM). Ethical approval and research and development approval was awarded by Bexley & Greenwich Research Ethics Committee on 09/07/2008 (Appendix B.1, p.241).

3.3 Organisational Sampling

This research was conducted on 8 wards, in one urban mental health foundation trust, a criterion which was predetermined by the wider programme grant. There were benefits in choosing this trust. It is large, with four boroughs providing hospital (and community) treatment for those affected by mental health problems. There are two inner city and two outer city boroughs, which were expected to vary, according to ward criteria such as patient turnover and staffing. DOORWAYS was undertaken in one of each of these differing settings (inner and outer city). Clearly, it is important to acknowledge that the main limitation in choosing one trust only is that the results may not be generalisable.

3.4 Researcher Identity

In this study, my role as a researcher was informed by my experience as a mental health nurse. I qualified as a mental health nurse in 2006 and initially worked on a psychiatric intensive care unit, which would be considered part of the acute care mental health services. As an entry level nurse, I was interested in improving working practices. Colleagues offered verbal acknowledgements that improvements were overdue, but none wished to participate actively in the necessary development work. This highlighted difficulties in how staff regarded their role in relation to change, in terms of their motivation, confidence and time. I therefore became interested in research, which offers a funded framework for investigating service developments.

I joined the PERCEIVE research team in 2008 as a nurse researcher. DOORWAYS offered an opportunity for nursing staff to increase their skillset in a number of therapeutic groups to improve how both staff and service users perceived the ward milieu. Given DOORWAYS would bring a period of change to the wards which focused on nurse involvement specifically, this provided a vehicle to explore how these staff view changes. As first discussed in chapter 1, this thesis takes a nursing perspective, informed by my personal experiences of barriers when implementing changes. This approach draws from service user researchers who have argued that lived experiences provide unique insights (Beresford 2003, Rose 2003, Sweeney 2010). Given nurses can play a major role in service developments it is important to consider their views, which may bring improve how changes are managed. The knowledge constructed explores, in depth, how frontline mental health nurses regard changes in ward settings, at their level of experience and in their daily working life. There may be other factors (e.g. system level barriers), which also inhibit the successful implementation of changes which are not explicitly addressed in this thesis.

There are both advantages and limitations resulting from my dual practitioner/researcher role, which must be considered. In order to achieve a more robust understanding of the phenomenon under study, different types of evidence were considered, from first person subjective accounts to data collated from psychometrically tested outcomes measures, within a randomised controlled trial design. Consequently, this thesis will move through both qualitative methods, to determine how staff perceive barriers to change, and quantitative methods, to examine how staff respond when changes are implemented. The VOCALISE measure, which is constructed from the views of staff with direct experience of mental health wards will be compared to other measures which were constructed by researchers. Both viewpoints are important in this thesis, in terms of capturing real setting data and explaining the impact of change on those working on the front line.

The participatory approach was particularly important in the qualitative stages of the project. Having "insider knowledge" (i.e. direct experience of acute ward working life) was beneficial when recruiting staff as they appreciated the efforts being taken to show positive regard for their expertise and knowledge. This reflects the findings of Ennis and Wykes (2013) who showed that a high level of service user involvement was a significant influence on successful recruitment in research studies (Ennis and Wykes 2013). My decision to conduct individual interviews rather than focus groups was influenced by an acquired understanding of the ward hierarchy, which I felt may have restricted open dialogue amongst colleagues, given the sensitivity of the topic. In the interviews, shared experiences equalised the power dynamic between researcher and participant, which may have inhibited frank divulgement of sensitive issues. It was clearly important also, to maintain a stance as an "objective researcher" as well as a "subjective mental health nurse". In order to mitigate for personal biases other researchers, (a clinical psychologist, two service user researchers and two additional mental health nurses), were involved with data interpretation and coding. The steps taken to reduce bias are highlighted in this chapter.

3.5 Participatory measure development

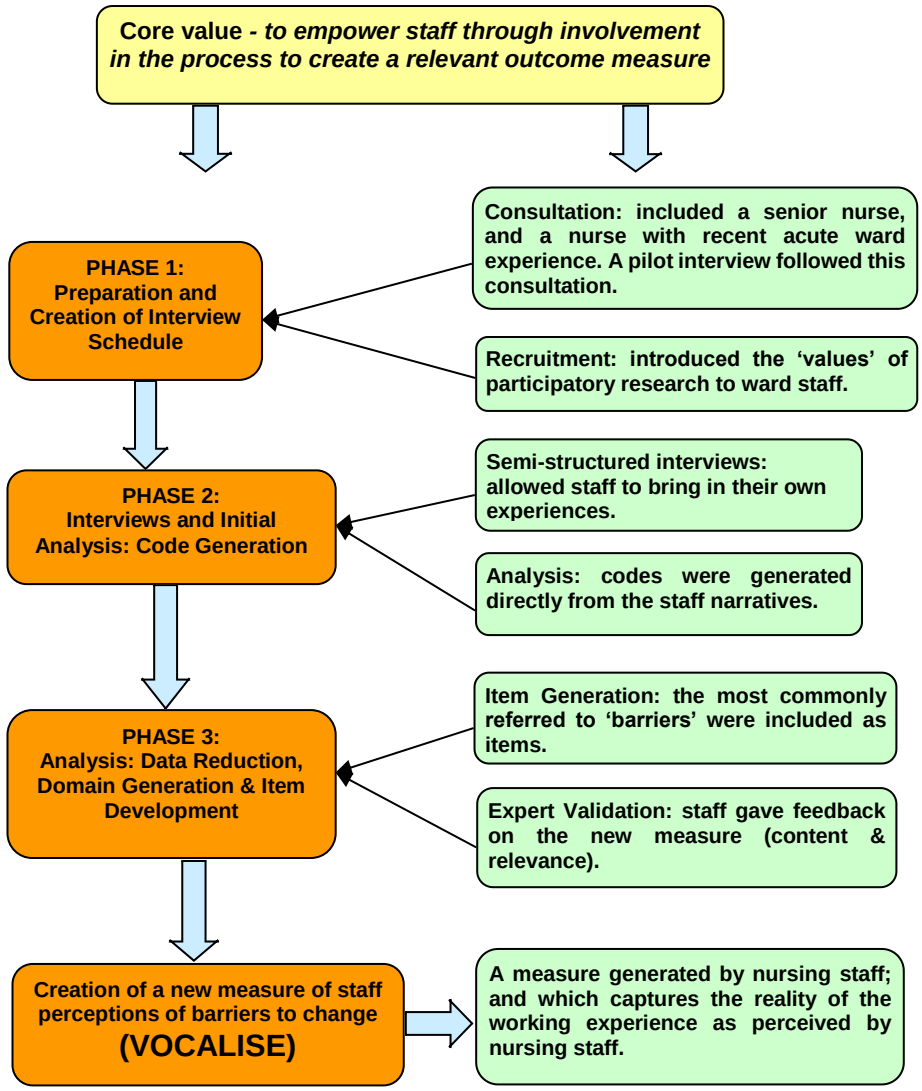
The aim in using participatory methods was to gain an understanding of the 'real life' working experiences of ward staff, which could be incorporated into a robust measure for use in a randomised controlled trial. The participatory model of measure development was across three phases (figure 3.2).

This thesis is nested within a larger programme of research during which another measure of staff perceptions was developed, also using participatory methods (VOTE: staff perceptions of ward climate). This informed the development of VOCALISE. Where relevant, these insights and how they influenced the methods for VOCALISE are included in this chapter.

The first phase focused on planning one-to-one, in-depth interviews exploring staff perceptions of barriers to change and developing an interview schedule. In phase two, data were collected via individual interviews. Analysis of these data revealed the most commonly perceived barriers to service improvements, which are presented in chapter 4. Phase three involved a final analysis and reduction of the interview data to form themes and the items for the final measure.

This method was expected to deliver a more relevant outcome measure by accessing the views of staff working in acute in-patient wards through direct participation, which was achieved because the researcher and the participants were nursing staff. This shared dynamic influenced how the data were gathered and used. Staff were recruited as experts in their clinical area. During recruitment and the interviews, mutual experiences enhanced rapport, and the power dynamic between participant and researcher was more evenly distributed (Fontana and Frey 2005).

Figure 3.2: The participatory model of measure development



3.5.1 Phase 1: Preparation and creation of interview schedule

In preparation for the interviews methodological considerations including the sampling strategy, interview schedule as well as room venue and layout were addressed.

Sampling Strategy

To ensure that VOCALISE reflected all staff perspectives a criterion sampling strategy was applied. A group of eight staff from each band (healthcare assistants, band 5 nurses, band 6 nurses and ward managers) was included, to ensure comparability both within and between groups (Flick 2006). Exploring any differences between how staff from different levels of nursing

perceived barriers to change was important because the literature suggests that occupational status may be a factor in how staff respond to change (Haar, Spell et al. 2005, Benn, Burnett et al. 2009). On all other demographic criteria, such as age, gender and ethnicity, staff were sampled to provide some representation of variation within the population of staff in the acute in-patient services in the Trust under study.

Interview Schedule

An initial interview schedule was drafted from the literature review and the focus group data used to develop the VOTE measure. The focus groups explored the current acute ward situation for staff and were a valuable resource given the limited literature. To allow participants freedom to explore their unique views, the interview schedule was flexible (Powell, McMillen et al. 2012). If new avenues for exploration emerged, these could be incorporated. Two exercises were undertaken to develop the interview schedule.

Exercise 1: expert group consultation: A consultation group was convened to discuss the structure and content of the interview schedule and to prepare a strategy for the interviews. This included the thesis author, a clinical psychologist, a senior nurse from the trust under study and an expert in qualitative methods/service user researcher. This range of expertise was useful in maintaining a reflexive, balanced approach. In keeping with the participatory framework, there were two nurses present to ensure that the nursing perspective was emphasised.

Exercise 2: Pilot interview: The participant was a clinical charge nurse and the interview was observed by a senior research nurse who provided feedback. As the focus groups had already provided background information on themes preventing change through detailed exploration of the stressors of acute ward working, a concise interview of 30 minutes in length was suitable to access the finer detail.

Recruitment

During the recruitment phase the participatory values of the research were presented to staff. The aim was to develop a relationship between the staff participants, the researcher and the research from the outset. My professional identity, as a qualified mental health nurse with experience of in-patient services was made explicit to participants through disclosure at the recruitment stage. First, ward team leaders were contacted, to request a meeting to discuss the project. Thereafter, staff were given a verbal overview of the project and copies of the information sheet were distributed. They were encouraged to ask questions about the project. Interested staff then emailed the information sheet and consent form (Appendix B.2, p.241).

Venue and room layout

To increase participation, the ward was considered the most appropriate place for the interviews to take place. In order to maintain confidentiality, a meeting room was used and no other person was present during the interview.

3.5.2 **Phase 2: Interviews and initial analysis: code generation**

Interview Procedure

Junior staff had appeared uncomfortable during the focus groups about disclosing sensitive information on team performance in front of more senior staff. It was therefore probable that group discussion of barriers to change might produce defensive, or overly optimistic responses by staff participants (Isaacs 1993), resulting in flawed data. Semi-structured individual interviews were considered advantageous because the one to one approach presented a reassuring and more explicitly confidential opportunity for staff to disclose potentially sensitive information

Open questions and in depth probing techniques were employed to encourage participants to follow their thought sequences through to completion, and to uncover hidden meaning (Legard, Keegan et al. 2003). This was expected to produce a measure which was valid and highly relevant to the current working situation, as well as being meaningful for staff.

The ground rules for each interview were agreed at the start. Participants were informed that discussions were confidential unless information arose which contravened the Nursing and Midwifery Code of Professional Conduct (2015). Staff were advised that the data would be recorded, and transcribed by an independent third party, that written information would be kept in a locked filing cabinet and that electronic data would be stored on a password protected computer. All participants were asked to provide demographic information (age, ethnicity, staff grade and ward) to check sampling. All data were anonymised.

Analysis

There was a clear purpose to the analysis, in identifying themes that characterise staff perceptions of change to produce items for the measure. A preconceived coding frame was not appropriate because the data were participant led, therefore the coding frame was created through the analysis.

The data were analysed thematically drawing from an approach described by Flick (2006). Initially, several cases were analysed separately to generate codes and to create a unique coding structure for each participant. Then, a large coding frame with higher order codes (core categories) was developed as part of an iterative process, where data collection and analyses proceeded concurrently allowing one to inform the other. This met the HTA criterion of content validity (which describes how broadly the components of the measure are covered (Fitzpatrick, Davey et al. 1998) because additions and new directions could be introduced to the flexible interview schedule. Examples of the coding process are presented in chapter 4.

The coding frame was built up using NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 10, 2012. The main advantage of NVIVO was in its ability to store and count data in one package, and within one large coding frame, whilst simultaneously storing each individual case, and the codes that relate only to that case. Cross comparisons between the cases allowed the emergence of abstract themes (Flick 2006) At the end of the analysis process, all themes

(which captured staff perceptions of barriers to change) had been counted and termed 'references' by NVIVO. This means that each staff perception was counted every time it occurred. Throughout the analysis process, attention was paid to limitations in the data, areas for further exploration and researcher bias through supervisory discussions and reflection (Koch & Harringon 1998)

Inter-rater reliability

An inter-rater reliability exercise was conducted to check the consistency of the coding. Accurate theme interpretations, which reflected the data and therefore captured the reality of the acute ward working experience, were important because codes were eventually converted into items based on the number of references. The inter-rater reliability exercise was conducted on two interviews and was completed by a service user researcher with experience in qualitative methods.

3.5.3 **Phase 3: Data reduction, domain generation and item development/reduction**

Data Reduction and Domain Generation

Data reduction is a process of reducing repetition amongst qualitative themes and core categories to create discrete units and groups of data (Attride-Stirling 2001). This was achieved by examining themes (codes) to ensure that where perceptions were repeated in the core categories, this was justified according to the coding strategy. Next, core categories were refined on the basis that each contained only themes which represented the total variation of each core category. Once this had been completed, domain generation was possible. This involved a secondary analysis of all remaining core categories. Working towards a higher degree of abstraction, new superordinate themes emerged which included similar clusters of core categories

Data saturation

The data were assessed to check whether any new information was being contributed to the core categories during the later interviews in each of the four groups (healthcare assistants, band 5 nurses, band 6 nurses and ward managers). The date of the last interview in each group was compared to the dates of the most recently created codes within the NVIVO program. If no substantially different or new themes were emerging, then the data were assumed to be saturated.

Item development and reduction

Core categories with high numbers of references were reviewed for inclusion as items on the measure. Each item was represented by at least 30 references. Commonly used language, vehemently expressed views, and emotional responses shaped the item content. The allocation of references to items was carried out systematically, so that themes with high numbers of references were converted to more than one item, as shown in table 3.1.

Table 3.1: Item allocation to the number of qualitative references

Number of references	*Number of items*
30 – 50	1
51-100	2
101-150	3
151-200	4
201-250	5

The generation of items for the measure allowed the criterion of *importance* to be explored. This refers to how useful the participants felt the measure would be in practice (Fitzpatrick, Davey et al. 1998, Harvey, Langman et al. 2005). Exploration of this criterion was possible because it complemented the participatory model.

Having generated the items for the measure, a process of item reduction was required to reduce any remaining repetition. The expert group scrutinized the item content, format and structure of the questionnaire, which led to modifications to improve the coherency and clarity of individual items, over four drafts.

Expert Validation

The measure was then subjected to two waves of feedback from the interviewed staff in a process of expert validation. In addition to the inter-rater reliability exercise, this formed another reliability check for the accuracy of the coding in producing the final measure items. In the first wave, all interview participants were asked to comment on the measure and discuss whether the items had succeeded in capturing the themes that they brought up during the interviews by considering the relevance of each individual item and discussing how closely the measure as a whole represented their own perceptions. They were invited to amend or add to the list of suggested items. In the second wave, three new participants (who had not participated in the interviews) were approached to comment on the sixth draft. They were asked to perform the same scrutiny on the individual items and the overall measure and provide feedback and this process produced some further revisions. Both sets of feedback allowed an assessment of face validity which explores whether the measure items actually measure what they appear to measure (Fitzpatrick, Davey et al. 1998). The feedback provided further evidence that the items were important to participants and that they would therefore be of use in practice.

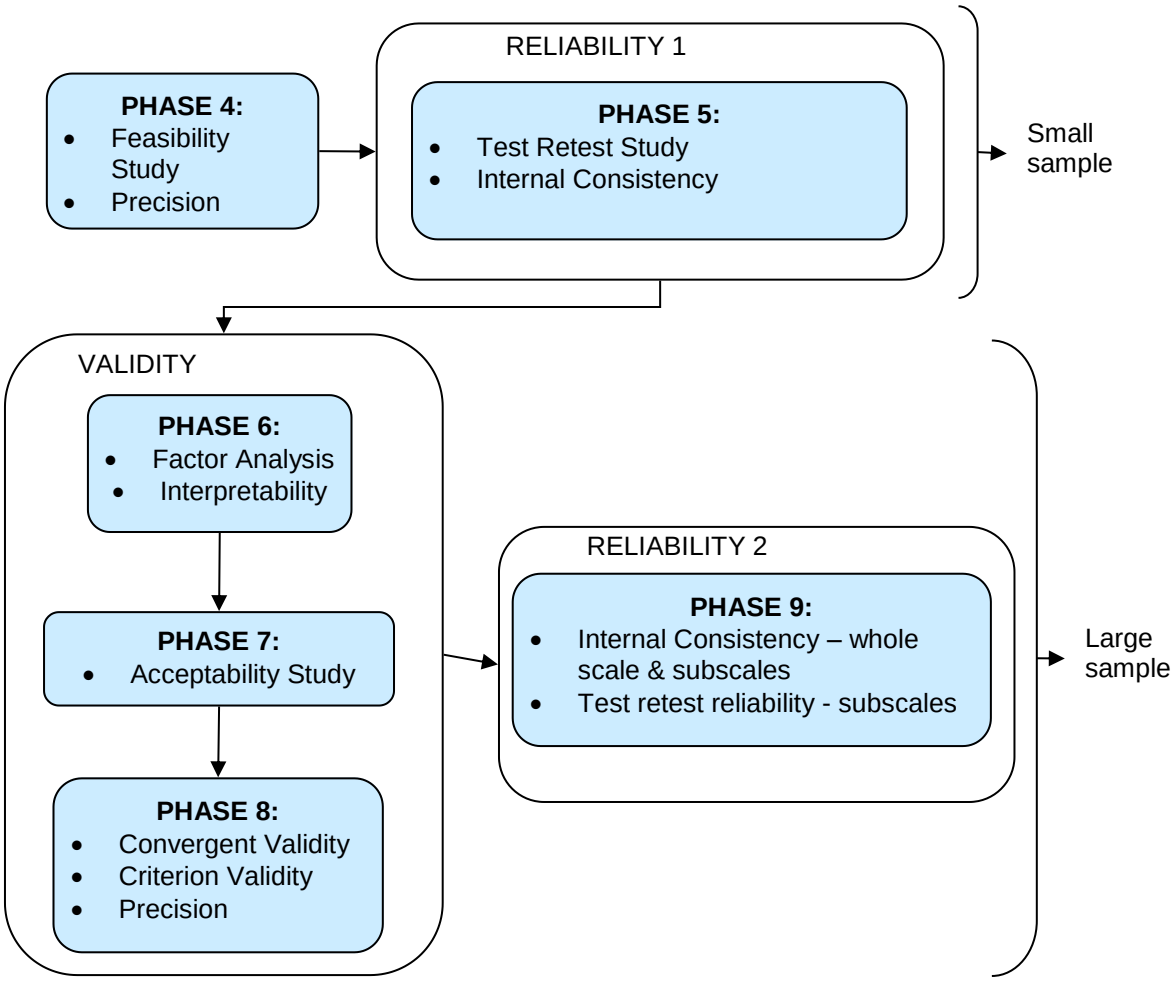
Ranking exercise

The validity of the participatory method in producing items which represented the population under study was tested through a ranking exercise where individual staff were asked to consider the top three barriers on their ward. This was completed later in the study by DOORWAYS staff participants, group 4 (N=125).

3.6 Quantitative Methods: Psychometric testing

VOCALISE was psychometrically assessed using quantitative methods in continuation of the process of measure development (Figure 3.3). All analyses were conducted in STATA 11.2 and IBM Statistical Package for Social Scientists (SPSS Statistics version 20).

Figure 3.3: The psychometric model of measure development



3.6.1 Samples

Sample size considerations were based on recommendations in the literature and the groups for each test are shown in table 3.2.

Table 3.2: Study design for psychometric testing

Group	Sample	Reliability	Validity	User
Group 1	Inpatient mental health settings (PICU/Forensic/Acute/National)			Feasibility
Group 2	Inpatient mental health settings (Forensic/Acute	Test retest reliability, Internal consistency		
Group 3	Follow-up data from DOORWAYS and BETTER PATHWAYS. Recruited from acute inpatient settings only.		Factorial validity, Internal consistency	
Group 4	DOORWAYS baseline. Recruited from acute inpatient settings only.		Convergent validity, Criterion validity	Acceptability

In all studies attention was also paid to the demographic information of the participants as it was important to include a representatively sample so that the variance in the scores would reflect individual differences in the sample (Kinnear and Gray 2008).

Sample size considerations

Feasibility study (Group 1): A sample size of N=40 was believed to be sufficient to clarify staff perceptions of feasibility on the measure (Evans et al 2012). Staff who participated in the feasibility study did not participate in the test retest study.

Test retest study (Group 2): The calculation for number of participants required for the test retest study was based on a study by Walter, Eliasziw et al. (1998). They suggest that with 2 repetitions, estimating that reliability will be around 0.8, a sample size of 39 would have 80% power at the 5% significance level to be certain that it is above 0.6. Internal consistency may be assessed on a small sample size of around N=40 (Ercran, Yazici et al. 2007).

Factor analysis (Group 3): Experts suggest that a sample size of at least 100, ideally 200 and optimally 300 respondents is appropriate for factor analysis (MacCallum, Widaman et al. 1999) dependent on there being at least 10 cases per item on the measure.

Interpretability (Group 3) and acceptability (Group 4): There were no statistical tests run on these data. Two previous studies have provided data on these criteria using a sample of N=55 and N=106 respectively (Evans et al 2012, Rose et al 2009). A sample size of N=100 was therefore believed to be suitable in assessing meaningful scores and to clarify staff perceptions of acceptability on the measure, given there were four different participating staff groups.

Convergent & Criterion Validity and Precision Tests (Group 4): When looking at relationships, Green (1991) suggests that $N > 104 + m$ (where m is the number of independent variables) when testing individual and multiple relationships. A sample size of around N=106 was therefore suitable for these tests, given only one independent variable was intended.

3.6.2 **Recruitment and data collection**

The process of recruitment followed a similar strategy to that of the qualitative phase.

Staff were recruited to DOORWAYS by a team of six research assistants, of which I was a member. The team leaders of the acute ward were contacted and meetings were arranged to explain the project. All data thereafter were collected on site whilst visiting the in-patient wards. Staff were approached directly, given copies of the information sheet and consent form, and encouraged to ask questions. Written consent was obtained (Appendix B.3 & B.4, p.244).

3.6.3 **Data (entry, checking, cleaning)**

I entered and checked the data for both the feasibility study and the test retest study using SPSS. The larger dataset (DOORWAYS T0, DOORWAYS T1 and BETTER PATHWAYS T1) was entered into a bespoke database called openCDMS developed for the PERCEIVE programme to

improve the data entry accuracy as the fascia mirrors the paper format of the measures included. The data were entered and checked by all six research assistants.

3.6.4 **Phase 4: Feasibility Study and Preliminary Precision test**

VOCALISE was intended as a self-report tool and therefore its viability in the clinical setting was an important consideration. Fitzpatrick, Davey et al. (1998) suggest that feasibility should not be treated as a static assessment factor; and therefore the research team continued to remain responsive to participant feedback during later stages. Staff from group 1 were asked to complete VOCALISE and two additional feasibility questions that were included at the end. The questions were: **1. The items in this questionnaire are easy to understand and 2. This questionnaire is easy to complete.** They were rated on a 5 point Likert scale where 1=Strongly agree and 5=Strongly disagree.

Processing issues were considered, with particular regard to data administration and entry. The mode of administration (of the measure) was assessed and deemed successful if the percentage of agreement with feasibility questions 1 and 2 (above) was high). The ease of explaining the measure to study participants, and the amount of researcher training required were assessed using feedback from the team of six research assistants.

Rules for Scoring: items that were negatively phrased were reverse scored, so that high total scores would indicate negative perceptions. Total and pro-rated scores were produced. Total scores were calculated on complete data by adding the individual items scores together. Pro-rated total scores were calculated when item completion was >90% using total score/number not missed x total number of items. To maximise participation, all analyses used pro-rated total scores, unless stated otherwise.

Summary statistics: Mean and median scores, standard deviation and missing data were assessed, for each item.

Wording: This was assessed through a review of the questions, with attention paid to missing data, and whether the answers had contextual coherency (i.e. that they made sense given the ward type and staff grade of the completing participant), or were ambiguous. Refinements were made to the measure according to the findings of the feasibility study.

Precision: Whether VOCALISE could distinguish between two different groups of staff working within the ward was assessed to provide an early sense check on the data.. A t-test was conducted to explore the following hypothesis, derived from the literature (Haar, Spell et al. 2005, Benn, Burnett et al. 2009). *Hypothesis:* it was expected that managers would have more positive perceptions than direct care staff.

3.6.5 **Phase 5: Test Retest and Internal Consistency (Reliability 1)**

Exploring the reliability of VOCALISE was important to provide data on its accuracy, or equally on whether there was too much measurement error (Streiner, Norman et al. 2015). The key assessment criteria were:

- Test retest reliability
- Internal consistency (including item test and item rest correlations).

Test retest reliability assesses reproducibility of scores in a measure, which are required to remain stable over time. Staff from group 2 were asked to complete the questionnaire twice separated by six to ten days. This time frame was suitable because VOCALISE is a measure of perceptions which are likely to change over short periods of time, and six to ten days is considered enough time to reduce memory effects (Cichetti 1994). Test retest reliability was examined using weighted kappa coefficients which were calculated using Cohen's (1960) kappa, on individual item scores, at the two time points. This meant that the difference between strongly agree and agree, for example, was given less weight than the difference between strongly agree and strongly disagree. Generally, scores of 0.21 to 0.4 indicate fair agreement, scores of 0.41 to 0.60 indicate moderate agreement, and scores above indicate substantial agreement (Landis and Koch 1977).

Next, concordance between the total scores was assessed using Lin's (1989) concordance coefficient to measure the level of agreement between total scores, with values at 0.6 or above above generally considered acceptable. Paired t-tests were computed to check the presence of any consistent bias.

Internal consistency was tested using Cronbach's alpha (1951) to assess whether the items together captured the same construct. The item-test and item rest correlations were also considered. Item test correlations show how highly correlated each item is with the overall scale and item rest correlations show how correlated an item is with the scale computed from all items excluding the test item. Both can be useful indicators of weak items, even when the differences between the alpha scores are small.

3.6.6 **Phase 6: Validity: Exploratory Factor Analysis**

Three dimensions of validity were assessed during phases six to eight: factorial, criterion and convergent validity. *Factor analysis* examines the patterns of relationships amongst observed variables, to determine whether they can be explained more simply by one or more underlying construct (Kline 1991).

The factorial validity of VOCALISE was assessed using SPSS 'principal axis factoring' and data from group 3. This followed two preliminary checks. First, correlations were assessed by computing pairwise correlation coefficients and using Bartlett's test of sphericity. The Kaiser-Meyer-Olkin measure of sampling adequacy examined whether the data could cohere into smaller groups of factors. KMO has the following heuristic values: 0.70 to 0.79 are considered middling; 0.80 to 0.89 are considered meritorious; 0.90 to 1.00 are considered marvellous. Two types of

rotation were then scrutinized (orthogonal and oblique). The preferred solution was based on the strength of the factor loadings and whether the groupings of the items made interpretative sense.

Interpretative ranges for both the entire scale and for any subscales were developed to address issues of score interpretability. These are a guideline only, and indicate the midpoint of the scale to provide a sense check on where positive and negative perceptions lie. Clearly much more data across larger populations would be required to specify cut off points, which was not the aim here.

3.6.7 **Phase 7: Acceptability Study**

Creating a measure that respondents considered acceptable was important to maximise the numbers of fully completed measures and reduce the amount of missing data. Acceptability was assessed using data from group 4 and by including three additional questions: (i) What do you think about the length of the questionnaire? (Too long, about right, too short), (ii) How did you feel filling in the questionnaire? (enjoyed it, neutral, disliked it) and (iii) Did you find answering any of the questions upsetting? (yes, no and if yes which questions?).

Acceptability to staff: the percentage of agreement with the three additional questions and examining the Flesch reading ease and Flesch-Kincaid Grade Level scores.

Response rates: Percentages of uptake into the research at each time point, by ward. Response rates have important implications for survey results and it may be difficult to interpret findings if response rates are low, or less than 60% (DoH 2000). The target was therefore 60% or more.

Time to complete: The research team provided evidence of completion time.

3.6.8 **Phase 8: Convergent Validity and Criterion Validity**

Convergent validity was evaluated using Pearson's correlations to compare the total scores of the VOCALISE measure to the total scores of the Views On the Therapeutic Environment (VOTE), which measured staff perceptions of ward climate. VOTE has sound psychometric properties (Laker, Rose et al. 2012). It was expected that staff with negative perceptions of barriers to change (VOCALISE) would also have negative perceptions of the daily stressors of the ward environment (VOTE). In addition, associations between VOTE and any VOCALISE subscales revealed through the factor analysis were examined.

VOTE was the primary comparator because its measured construct was likely to overlap with that of VOCALISE, which identifies aspects of acute ward working as barriers to change. VOTE and VOCALISE contain some similar themes such as lack of staff, high workload, poor co-operation amongst team members, insufficient leadership. VOTE and VOCALISE will take different positions in model testing later because whilst VOTE captures daily ward working life, VOCALISE specifies barriers to change.

Criterion validity was examined by exploring the relationships between two criteria (independent variables: occupational status and work satisfaction) and VOCALISE (dependent variable). As discussed in chapter 2, healthcare staff in senior positions are more likely to view changes positively than those in direct care positions (Benn, Burnett et al. 2009). Although this is a finding from a general healthcare setting, it is likely to be transferrable to mental health where a similar hierarchy exists. Further, a reduction in job satisfaction has been observed in employees who view changes negatively (Wanberg and Banas 2000, Martin, Jones et al. 2005, Kuokkanen, Suominen et al. 2009). Therefore, two hypotheses were tested, based on the literature.

1. Staff perceptions of barriers to change will be more positive in staff with higher organisational status (senior staff), compared to those in more junior roles (Benn, Burnett et al. 2009).

The occupational status variable captured staff grade, dichotomised into two groups (managerial staff/direct care staff). Work satisfaction was measured according to staff perceptions, using the Index of Work Satisfaction (Stamps and Piedmonte 1986).

2. Staff with positive perceptions of barriers to change will also have high levels of job satisfaction (Wanberg and Banas 2000). The two groups were staff with positive perceptions of job satisfaction and staff with negative perceptions of job satisfaction.

The IWS scores were dichotomised to create two groups, using an *a priori* point (171) which was the average from four previous studies (Tumulty, Jernigan et al. 1994, Burnard, Morrison et al. 1999, Takase, Kershaw et al. 2001, Jernigan, Beggs et al. 2002). Given high scores were negative, positive perceptions were defined as scores of 171 or below.

Criterion validity was examined using random effects regression models, which clustered on ward. Klein & Kozlowski (2000) suggest that attention should be given to the unit of analysis as linked to the theoretical concept underpinning the research. The decision to use random effects models was theory driven and based on the nature of the data collected, which were hierarchical. Random effects models (Johnson, Brems et al.) were preferred because it was likely that individual (staff) differences would relate to the group (ward) that they belonged to and that both would influence perceptions of barriers to change. Contrary to random samples where observations are expected to be independent and identically distributed (i.e. there is no relationship between individuals), individuals in the DOORWAYS sample were related through shared ward experiences.

The random effects model allows for these differences in the estimation by 1) allowing the outcome to vary by individual and by the cluster variable (random intercept model) and 2) by allowing observations within clusters to correlate. Hence, random effects models include an added variance component to explain the additional level of variation in the hierarchical (multi-level) data structure; and variance is considered both within and between clusters.

Theoretically, random effects models are advantageous because omitted, or latent variables are handled by modelling the correlations of the error terms. This makes these models suitable for complex research settings such as mental health wards, where it would be difficult to capture all the observable features that might influence an outcome. Random effects models can also include variables which do not vary across time, such as gender (Clark and Linzer 2015). In these models, **sigma_u** corresponds to the standard deviation of the average total score of the dependent variable across wards; **sigma_e** is a measure of the "unobserved variance" or the residual standard deviation and **rho** measures the percent of variability in the dependent variable's total scores due to ward heterogeneity (Vittinghoff, Glidden et al. 2005).

Post hoc analyses were conducted to show how the groups in both the dependent and independent variables were related. For example, if the independent variable: occupational status (senior staff/direct care staff) was the predictor then both a predicted mean VOCALISE score for senior staff, and a predicted mean VOCALISE score for direct care was computed.

3.6.9 Phase 9: Internal Consistency (Reliability 2)

Internal consistency was examined in a larger sample. The aim was to replicate the findings. The internal consistency of any subscales resulting from factor analysis was also considered, to ensure the co-existence of both internal consistency and construct validity. High internal consistency, for example, could occur if items were similar and therefore highly correlated, at the expense of the full spectrum of the construct being captured (Kline 1991). Test retest reliability was also examined on the subscales using Lin's (1989) concordance coefficient and paired t-tests as outlined in phase 5 (Reliability 1, section 3.6.5). Finally, the internal consistency and item rest correlations were repeated for the whole measure using Cronbach's alpha (1951).

3.7 Summary

This chapter outlines a participatory model that used both qualitative and quantitative methods to develop a novel measure of staff perceptions of barriers to change (VOCALISE). The assessments of several of the Health Technology Assessment criteria including feasibility, reliability, acceptability and validity (Fitzpatrick, Davey et al. 1998) were described together with their analysis protocol.

In the next chapter, the results of the qualitative process of measure development will be presented. VOCALISE will thereafter be used to explore staff perceptions of barriers to change and to assess how staff attitudes shape the successful outcomes of planned changes.

Chapter 4 : The qualitative development of a measure of staff perceptions of barriers to change

4.1 Introduction

In this chapter, the relationship between how ward staff experience their working environment and how they respond to changes is examined. The aim was to explore the conjecture, first introduced in chapter 1, that since acute mental health wards have a complex and multi-faceted environment, prone to instability and sometimes violence, delivering change may require a more comprehensive review in order to succeed (Brennan, Flood et al. 2006). In order to achieve a wider view stakeholders were involved in developing the VOCALISE measure to reflect more accurately the reality of acute ward working for staff.

The findings are described in three phases:

- Phase one is the creation and refinement of the interview schedule as well as discussion of the sample of mental health nursing staff who contributed to the interviews.

- Phase two reports the process of qualitative analysis. Initial analyses revealed findings across six overarching domains which included communication, generation of ideas, strategy, support and monitoring, team dynamic and resistance to change.

- Phase three details the qualitative data and the creation of categories and items for the measure, and presents the final draft of the VOCALISE measure, ahead of psychometric testing.

4.2 Phase 1: Creation of Interview Schedule

4.2.1 **Interview Schedule**

At the beginning of the PERCEIVE programme, I convened focus groups to explore staff perceptions of acute mental health wards in order to develop the VOTE (Views on the Therapeutic Environment) measure. These discussions highlighted key areas for further exploration in relation to making changes to practice:

1. Poor managerial support.
2. Ward climate.
3. Staff resistance towards changes.
4. Negative consequences of changes in terms of lowered staff morale.

An initial draft interview schedule with four main questions and a number of prompts, was developed on the basis of these focus group data and relevant literature (box 3.1).

Box 4.1: Interview schedule 1

What is your opinion about the following in relation to changing practice?

1. How do you think your nursing colleagues as a group would respond to changes to practice?
    - What about the team perspective around performance?
    - What about team cohesion and consistency?
    - What about teamwork?
    - What about leadership?
    - What about the multi-disciplinary team (MDT)?

2. How do you (subjectively) feel about changes to practice?
    - What about your current skill set?
    - What about learning anxiety?
    - What about training?
    - What about time?
    - What about support and supervision?
    - What about feeling valued?
    - What about feeling listened to?

3. How would you describe the culture of your Trust?
    - What about values and beliefs?
    - What about practices and systems?
    - What about support?
    - What about the management?
    - What about training?
    - What about communication?
    - What is the effect on patient care?

4. How would you describe the culture of your ward?
    - What is the ward perspective around patient care?
    - What about the atmosphere?
    - What about the environment?
    - What about team spirit?

Two consultation exercises then followed to refine the draft interview schedule.

Exercise 1: expert group consultation: The consensus view was that the interview schedule should be refined to focus specifically on perceptions of barriers to change. The aim was that questions should be structured to produce data that reflected acute ward working, as realistically as possible. The prompts required some revising so that they were less specific, to allow new themes to emerge. In addition, the expert group wished to avoid any negative impact of social acceptability bias. As self-reports of perceptions of barriers to change require critical self-

assessment of professional values and working behaviours, it was possible that staff might feel worried about divulging negative issues. In previous studies, vignettes and scenarios have successfully reduced social desirability bias (DoH 2004, DoH 2006), and this strategy was adopted.

Staff were asked to reflect on general changes to practice, for the purpose of the interviews. The rationale for this was pragmatic, and staff were encouraged to state a specific change that had been attempted. Drawing from experience was considered more likely to produce a rich, real setting data set. This could encompass change in many forms, given the NHS is in a state of constant flux, and was intended to highlight feasibility issues, many of which are likely to be generalisable. The interviewee was asked to consider a recent scenario in ward practice where a change had occurred. This would enable each participant to formulate a narrative around their own experiences. Two open questions were devised: the first would focus each participant on barriers to change and the second on enablers of change. Prompts were devised in relation to each question, which focused on both the individual perspective and the team perspective, to allow consideration of individuals within the ward context.

The expert group also discussed the interview strategy. The interviewee would be encouraged to cover their chosen scenario in detail. Prompts such as 'what else?' or 'did you want to add anything further?' could be employed as required. Standard techniques such as summarising the information and feeding back to the participant would ensure that participant reports were being understood as intended. Clarification would be sought by asking 'have I understood that correctly?' The interview schedule was redrafted according to the decisions taken during this consultation exercise (box 3.2).

Box 4.2: Interview schedule 2

Think of an example of a change to clinical practice that has recently happened on your ward. Examples might include: protected mealtimes, medication competencies.

- In your opinion, has anything prevented things from changing in your clinical environment?
    - What stops changes from happening in the team as a group and for individuals?
    - What makes it hard for you to do something differently?

- What has been done to enable change?
    - What would enable you to change your practice?
    - What enables change for the team as a group and for individuals?

Exercise 2: Pilot interview: The interview schedule was tested with a clinical charge nurse acting as a prospective participant, and a senior research nurse observing. The clinical charge nurse reported that the questions were easy to understand and sufficiently open to ensure, with

prompting, that the topic could be covered adequately. She also commented, early in the interview, on the beneficial effects of being interviewed by another nurse in creating a rapport.

Discussion with the senior research nurse observer identified further changes. These were:

- A clearer opening question.
- Questions needed phrasing that would not influence or bias the data. So they were framed more closely around perceptions and less on process issues.
- Prompts were needed to encourage dialogue.
- Keeping an equal distribution between the individual perspective and the team perspective was important in creating a well-balanced dataset.

The opening question was rephrased to "What are the barriers to making changes to your clinical practice?"

4.3 Phase 2: Interviews and Initial Analysis: Code Generation

4.3.1 Interviews

Thirty-two interviews were held and included staff from 10 different acute wards. Given a criterion sampling strategy was used to ensure that a member of staff was included from each staff grade, this sample was not representative of the ward overall. However, attempts were made to achieve variation across the demographic criteria of age, ethnicity and gender.

4.3.2 Sample

Table 4.1: Demographic characteristics of interview participants

TOTAL		**TOTAL**
Age range	18-30	4
	31-40	10
	41-50	5
	51-60+	5
	Missing	8
Band	Healthcare Assistant	8
	Band 5	8
	Band 6	8
	Band 7	8
Gender	Male	14
	Female	18
Ethnicity	White	18
	BME	14

4.3.3 Initial Analysis

In describing changes to their practice areas, the majority of staff either referred to the smoking ban or the introduction of 'protected therapeutic engagement time'. Several staff made reference to ward level initiatives such as introducing a clinical supervision group, team nursing in place of the old keyworker system, link workers, a daily community meeting and restructuring the approach taken to supervision. Two staff described the introduction of I.T. initiatives, and two staff talked

about implementing the Knowledge and Skills Framework, used to review staff performance. One interviewee described a negative effect of bed reductions on the quality of care.

During the initial analysis, two overarching categories were created by splitting the interview between positive responses and negative responses to change. These core categories formed the starting point of the coding frame. Analysis began after the first interview had been transcribed and continued throughout data collection, as part of an iterative process, so that new topics arising from the data could emerge in subsequent interviews, maximising data generation. This enabled the creation of generic codes (themes), containing clusters of codes (sub-themes) that would be applicable across all groups. After the inclusion of several interviews, patterns and relationships between the codes started to emerge within the data, and the development of higher-level codes (super-ordinate themes) was possible.

In order to maintain consistency during the coding it was important to consider the nature of a theme at the outset (Braun and Clarke 2006). Consideration was given to both manifest themes, which were directly observed statements and latent themes with layers of meaning requiring interpretation, (Jochelson 2006). Latent themes that required more than one code and interpretative reasoning necessitated a sequence of distinct decisions so that codes capable of capturing the complexity of the reported perceptions could be produced. The simultaneous interpretation of both manifest and latent themes was possible during the analysis process.

Manifest themes

An example of the initial analysis process is presented below. A manifest code, which could be reduced to a single unit of perception, appears in the following quotation,

> 'This ward has been a lot more acute than the other two wards - we've had 71 admissions in the last three months and the other wards have had, I think, half that amount'

In this statement, the perception of the ward as an acute environment was coded under the theme 'acute ward', within the core category, 'negative responses'.

During the 32 interviews, 29 of the cases mentioned the issue of the ward being 'acute'. Other, similar terms such as 'chaotic' were used to describe the environment; and descriptions such as 'too unwell for an acute ward' were used in relation to the client group. As these terms were all similar, they were recognised as relating to 'acuity' and were consequently also included in this theme, which was re-entitled "acute/chaotic ward".

Latent themes

In order to capture the layers of meaning more surrounding data were also considered,

> **'**In all fairness this ward has been a lot more acute than the other two wards - we've had 71 admissions in the last three months and the other wards have had, I think, half that

amount. We had 11 admissions in one week last week - I mean, it has been - and you know we've had there, there, have you know, there has been a lot of one thing I have noticed which I always used to curse X.X.X. [another ward] for is that they were always really quite defensive about taking transfers and things but one thing I have noticed and maybe it's just because I get sucked in a bit, is that this ward does get dumped on a lot'.

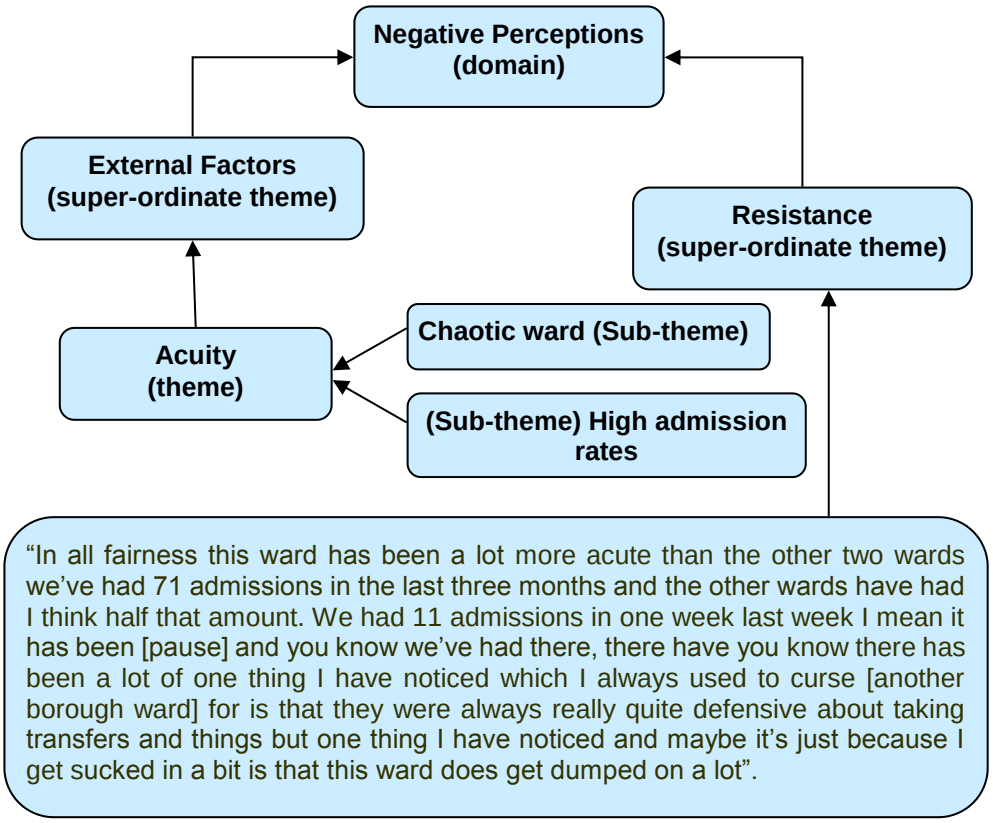
Table 4.2 shows how the perceptions of the participant were interrogated in relation to the research aim. Having identified manifest themes, latent themes were added with areas for further exploration. These were then explored during subsequent interviews and throughout the dataset.

Table 4.2: Exploring manifest and latent themes in the interview data

Manifest themes	Latent themes	Areas for further exploration
➢ In respect of the question 'what prevents change in your clinical environment?' this team leader manifestly suggests that 'acuity' is a barrier to change. He feels that his ward is busier than another in close proximity.	➢ Although not directly expressed, feelings of unfairness seem to have built up, expressed through the comparison of his ward to another local, with less perceived admissions.	➢ Are this team leader's views influential over the perceptions and behaviour of other team members?
➢ His perception is that both he and the nursing team have little control over this external factor which impacts on both his, and the teams' ability to manage changes successfully.	➢ This may suggest a latent sense of powerlessness and low autonomy for managing changes.	➢ Are feelings of powerlessness and unfairness linked to resistance? ➢ Are these phenomena present in other wards?

As other staff grades were recruited from the same wards where possible, similarities and differences in perception were compared. As more data emerged, it became clear that resistance was not an individual perception but a more widespread, cultural issue amongst staff, and one that was frequently expressed latently. Consequently, the entire piece of text in the example above, was located in a super-ordinate theme entitled 'resistance', within the overarching 'negative perceptions' category (figure 4.1).

Figure 4.1: The process of interrogating the interview data to produce themes



4.3.4 Pre reduction coding framework

After 21 interviews had been coded using the coding method outlined, although some new themes were emerging, similar themes also began to occur. The tables in Appendix C (p. 247) show how the coding frame appeared before the process of data reduction began.

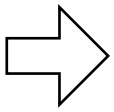
4.3.5 Inter-rater reliability

The inter-rater reliability exercise with two raters achieved 87% levels of agreement.

4.4 Phase 3: Data Reduction, Domain Generation and Item Development

4.4.1 Data reduction and domain generation

Sub themes were reduced and main themes were refined so that they represented discrete concepts. Then, domains were generated from a secondary analysis of the main themes. This was achieved by working towards a higher degree of abstraction to create new sets of super-ordinate terms. These characterised similar clusters of themes, which would be converted to items for the measure. Some of the barriers that contributed to the superordinate theme, Strategy, are shown below:

THEMES		DOMAIN
(The plan was) poorly defined (There was….) no focus No structure, no rules, no plan, no organisation (I, we...) don't know what to do, how to do it		STRATEGY

At the end of the data reduction process, six domains had emerged. Combined, these perceptions contributed to a comprehensive picture of the enablers of, and the barriers to, change in acute settings. Table 4.3 shows the number of references per domain.

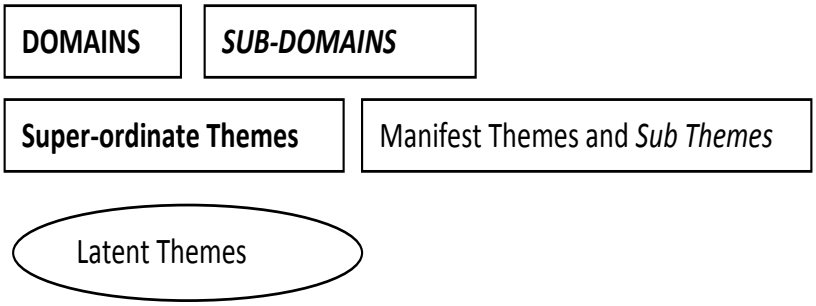
Table 4.3: The domains of staff perceptions of barriers to change

DOMAINS	+VE REFERENCES	-VE REFERENCES
1. COMMUNICATION	108	89
2. GENERATION OF IDEAS	44	184
3. STRATEGY	373	544
4. SUPPORT & MONITORING	206	330
5. TEAM DYNAMIC	551	263
6. RESISTANCE	1185	112

In these data, the enablers of change (positive perceptions) categories substantially mirrored the barriers to change (negative perceptions) category. However, examples of positive perceptions will be provided in the following analyses to maintain balance, and one example model of positive perceptions of communication is presented on page 86 as an example. Many “positive” perceptions were staff suggestions for better change management practices, based on their negative experiences, rather than examples of real experiences. These are summarised in table 4.10. As the purpose of the measure was to provide a snapshot of staff perceptions of barriers to change at a point in time, it was important that the items were constructed from tangible difficulties that could later be measured. The negative perceptions data therefore provided the core material for the items on the measure.

Tables 4.4 – 4.9 provide a numerical representation of the total number of negative references made by staff within each theme. This information is broken down by staff group. Sub-themes are indicated by arrows and are indented (note: the same individual may have referenced the same theme more than once). Measure items were derived from themes (which are shown in boxes at the end of each section). Exemplary quotations are included which link to the items. Figures 4.3 to 4.8 map the relationships between the qualitative themes in each domain (negative references) to provide indicative models, which explain how staff conceptualized *barriers* to change. The key for these figures is as follows:

Figure 4.2: Key explaining the domains of VOCALISE



The following transcription entries should also be noted:

- … affirmations of the interviewer
- X.X.X. a deleted name
- - a pause
- ~~~speech that could not be transcribed

At the point of item development, positive and negative phrasing was considered. Phrasing items to reflect clear barriers or enablers based on the barriers cited by staff would provide an opportunity for staff to agree or disagree using a Likert scale, which is discussed later. In order to assess the HTA criterion of *importance* the references were converted to items based on how frequently they were discussed. Domains with higher number of themes represent more complex constructs.

DOMAIN 1: COMMUNICATION

There were three themes in this domain which described how innovation was communicated to staff, both at the beginning of the process and during the changes. Greenhalgh, Robert et al. (2004), Durlak and DuPre (2008) and Damschroder, Aron et al. (2009) cite communication as a key component of successful innovation. This draws from work by Rogers (2003) who argued that the success of implementation depends on the presence of communication channels within a social system.

Table 4.4: Communication by band and references

THEME (N)	Staff band				TOTAL references
	HC	5	6	7	
1. Dissemination of information **(N=21)**	11	12	7	10	**40 (1 item)**
2. No/infrequent team meeting, official discussion, explanation... **(N=13)**	8	13	4	5	**29 (1 item)**
3. No feedback/negative feedback...**(N=14)**	5	5	5	5	**20 (1 item)**
TOTAL references (items)	**24**	**30**	**16**	**20**	**89 (3 items)**

1. Dissemination of information

Staff reported that information was not conveyed consistently during changes. Either information was not passed on or it was passed on inaccurately and sporadically,

> *Healthcare assistant*
>
> 'Communication is not good it's not particularly good on the ward in between in terms of – it's good about the patients, but we really don't get very much time with the way we communicate - sort of daily issues between each other'.

> *Band 6 nurse*
>
> 'I think that's maybe where role comes into it that I very much rely on kind of emails and its very much a part of kind of I think a managerial kind of you know ... Role and that kind of thing is you do email a lot I think there are some people that yeah don't feel they need to check or aren't in the habit of kind of checking … So I guess the information is getting missed if you're not at the meeting and then you're not reading the notes or even if you are at the meeting …'

An example of a positive attempt to communicate effectively, which alludes to improved team relations, mirrored these findings,

> *Team Leader*
>
> 'probably the way we've dealt with that is to sort of have regular meetings and talk about the change and make it more of a sort of team effort rather than me just say right this is what we're going to be doing like it or lump it'.

2. No or infrequent team meeting, official discussion, explanation

Staff agreed with the principle that meetings would encourage team discussion, which would cultivate a consensus view amongst team members, which would therefore facilitate changes. However, these meetings were limited by thrice daily staff rotations creating a sense of frustration,

> *Team leader*
>
> 'And I, I learnt things from it as well … that, you know, we were holding meetings but not enough not frequently enough ... because that's one of the challenges of being an inpatient team ... you know, you don't get to see all your staff at any one time'.

> *Band 6 nurse*
>
> 'It's difficult because, you know, we didn't speak to an individual - on an individual level to everybody and certainly in the next meeting not - we didn't have a whole staff group in that meeting to - nobody voiced any of those direct concerns'.

3. No feedback, negative feedback

After changes had been initiated, staff of all grades described receiving inadequate feedback from colleagues about progress or strategy,

> *Band 5 nurse*
> ‘I’ve realised that the groups had not been happening at, and it’s not, and I understand where people are coming from, but I wish that they would come and tell me or tell X.X.X. that this group’s not happening because there’s a problem that it’s not happening’.

Some of the data indicated that staff anticipated a negative response, given that when feedback was provided, it was either negatively focused, or related to targets,

> *Team leader*
> ‘I think for me it’s quite difficult because I get sort of my boss coming down and saying the stats are low you’ve only reached 72% on the HONOS (Health of the Nation Outcome Scale) scores’.

> *Team leader*
> ‘I think that the problem is, is that when those people who come on the ward, it’s seen as like their checking up on us and they’re you know and the problem is, is since I’ve been here, the only proper meeting that we’ve had with those people above, was the meeting where the staff were told that the ward might be closing - so there’s quite a negative view of kind of the, the outside’.

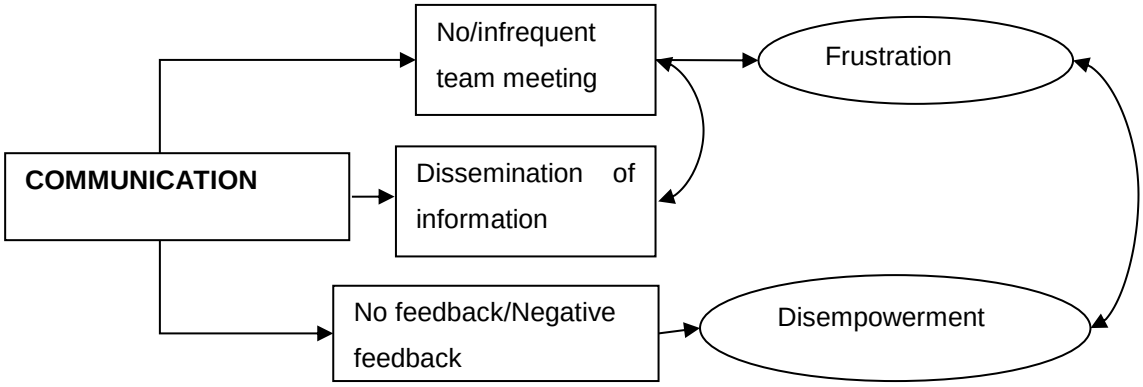
One nurse described a motivating effect of having good (informal) feedback,

> *Band 6 nurse*
> ‘Once it started and the group became more frequent, our team starting receiving good feedback … less patients in the day room because they were in groups so they were just quiet, I mean, I’m just quoting what people said’.

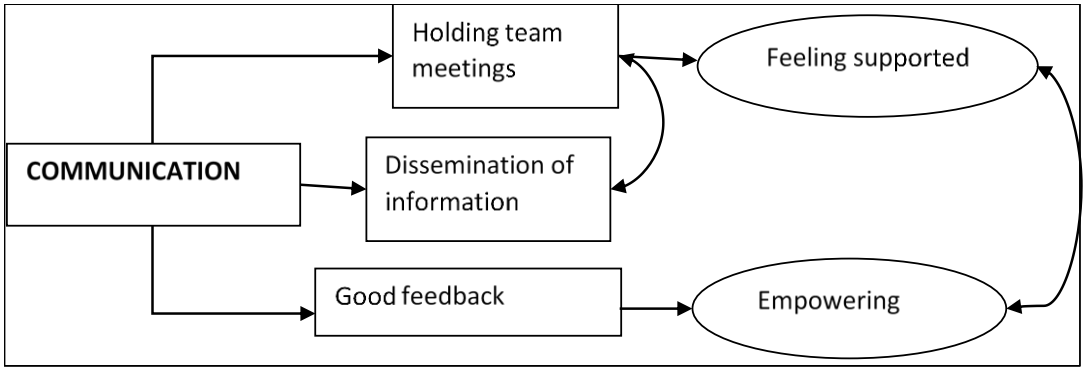
These data suggest that channels of communication (poor dissemination of information, infrequent meetings) are insufficient for change to be delivered successfully. If innovation is dependent on positive and supportive interactions, the acute ward presents numerous challenges as a social system (Schein 1996). In these data, poor communication was characterised by infrequent team meetings, poor leadership, limited dissemination of information, and once the change process was underway, negative feedback. These were cited as barriers to change. Underlying these themes staff appeared to feel disempowered and frustrated. Staff views, which were positively framed as ‘enablers’, added limited information to the themes built from analysing the barriers. This is illustrated in figure 4.3 below:

Figure 4.3: Communication regarding changes

Barriers:



Enablers:



Issues with communication and the effects of poor communication re-occurred frequently throughout the dataset, and these links will be highlighted in subsequent sections. These data were converted into draft items for the measure as follows:

Box 4.3: DOMAIN 1: COMMUNICATION (3 items)

Dissemination (1 item)

1. When it comes to change, information is not disseminated effectively on my ward.

No/infrequent team meeting, official discussion, explanation (1 item)

2. I would feel more confident about changes if we sat down as a team and planned how to tackle them.

No feedback/negative feedback (1 item)

3. When we try to make changes on my ward we receive unsatisfactory feedback (negative or none) around how to manage the problems that come up.

DOMAIN 2: GENERATON OF IDEAS/ CHANGE PLANNING

As discussed in chapter 2, previous research suggests that hierarchical management styles can affect morale (Diefenbach 2009, Teo, Yeung et al. 2011) amongst nurses. There may also be a link between how involved staff are in changes and how fair they find them (Greenberg 1987). In this domain one dominant theme emerged which described how staff felt about Trust-led decisions for improvements.

Table 4.5: Generation of ideas by band and references

THEME (N)	Staff Grade				TOTAL references (items)
	HCA	5	6	7	
1. Imposed, top down instruction… (N=15)	1	18	10	15	34 (1 item)

1. Imposed, top down instruction

Staff referred to changes which had been decided by senior Trust leaders, with little consultation of, or consideration for, the individual or ward perspective,

> *Band 5 nurse*
> 'it was something which I think was just put in place from top down, and I know that, you know, that can create barriers in itself and people just feel that a change is imposed on them'.

The qualified staff (bands 5, 6 and 7), were much more likely to comment on this theme, with only one comment by a health care assistant. Communication was regarded as non-consultative and authoritative. The underlying tone of these comments indicates a sense of powerlessness, which was perhaps more closely related to how decisions were conveyed than to the senior level at which they were conceived,

> *Band 5 nurse*
> 'you must have you know, heard enough from a lot of people … you know, a lot of changes … come to us and … they are a surprise ... We were hardly informed'

> *Band 5 nurse*
> 'but if you're actually to know this is all centralised then what's, where the incentive to be creative, where's the incentive to come up with better solutions? We're actually denying anybody above below ward manager level has any initiative.'

One team leader described her efforts to make the best of top down changes, by focusing on the benefits and on sympathetic dissemination,

> Team leader
> 'its just a question of trying to work it out in your own head so that you can explain it to other people how its going to work - simplify it as much as possible and put it over as

something that, ok, bits of it might be a drag - but it has advantages for you and in a couple of years time we'll look back and laugh.

The smoking ban, which came into effect in 2008, further illustrates this point, as it was a legal matter, which was devolved from the government level, and could not be contested:

Band 6 nurse

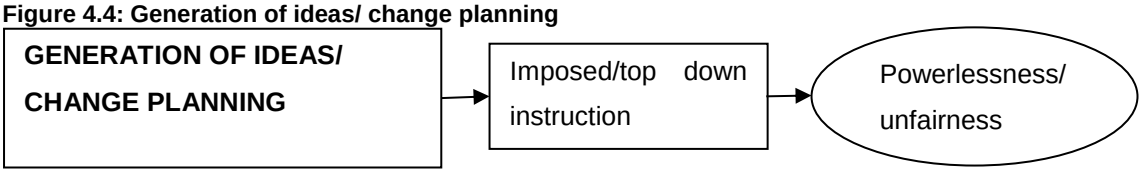
Participant: 'I don't really care I don't really care what anybody in the Chief Executive says - our directors, our assistant directors or anything, about how the non-smoking ban impacts on nurses on the wards - how it doesn't - how it doesn't really affect them too much - how there is no evidence in research in the past of increased violence threats and aggression …'

Interviewer: 'Have you noticed it?"

Participant: 'Yeah of course there is … And it's extra and this is something that is extremely, very exhausting'

These ideas are illustrated in figure 4.4:

Figure 4.4: Generation of ideas/ change planning



Perceptions of powerlessness may therefore be derived from authoritative management methods that can be employed to present innovation to staff. The powerlessness expressed by staff suggests that disconfirmation may be more difficult for staff if changes are imposed (Schein 1996). Accepting the need for innovation may depend on how well informed and involved staff feel in upcoming changes. Equally, these data highlight feasibility issues that had not been addressed at the ward level, which may have been reduced through better communication. These data were distilled into the following item for the measure:

Box 4.4: DOMAIN 2: GENERATON OF IDEAS/ CHANGE PLANNING (1 item)

Imposed/top down instruction

1. When changes are imposed from the top down that do not seem appropriate for my ward it negatively affects morale.

DOMAIN 3: STRATEGY FOR CHANGE DELIVERY

There were six themes in this domain that referred to how staff developed ward based strategies to manage new changes after decisions to innovate had been taken.

Table 4.6: Strategy by band and references

THEMES (N)	Staff Grade				TOTAL
	HCA	5	6	7	
1. Not having a choice feels punitive **(N=11)**	6	13	4	4	**27 (1 item)**
2. No flexibility **(N=13)**	8	10	5	2	**25 (1 item)**
3. Poorly defined for the clinical area **(N=22)**	10	14	19	16	**59 (2 items)**
4. No structure/direction/no rules**(N=24)**	17	40	20	15	**92 (2 items)**
5. Don't know what to do, how to do it **(N=27)**	17	38	32	11	**98 (2 items)**
6. Conflict **(N=17)**	12	8	12	12	**44 (1 item)**
TOTAL references (items)	**74**	**123**	**92**	**60**	**345 (9 items)**

1. Not having a choice feels punitive

Ward staff who were generally not involved in the consultation process for change, often felt that changes were unfair. More junior staff (healthcare assistants and band 5 nurses) reported these negative effects more frequently than managerial staff (band 6 and band 7). Staff used language indicative of feeling oppressed,

> *Band 5 nurse*
> 'We felt it was an added burden, we felt that we had no choice'

> *Healthcare assistant*
> 'Though I do think there was an element of sort of Machiavellian sort of style management going on, but I don't think he was being malicious and that's why I probably, why I didn't complain. If I felt that I was being really victimised then I would have done, but I think he just had a very unrealistic idea about his project and I think he was, you know, his management style was quite, you know, quite sort of - what the word is exactly, patriarchal, quite sort of authoritarian'.

The underlying tone of these comments, again, conveys a sense of powerlessness,

> *Band 6 nurse*
> 'we had no choice – we were given – we had to make very, very tough choices and yeah we did it'

2. No flexibility

Staff reported that inflexible strategies were less likely to be feasible in the clinical area. To illustrate this point, one nurse spoke about training sessions that had been organised for staff to attend between two and three o'clock in the afternoons,

Band 6 nurse

'They've hardly been attended because, because there's the meetings swap round, and so, oh - there's nobody on the ward, and the ward are short staffed and there's been a crisis … And the consultant changes the ward round time to today for this week only and there's a unit nurse coordinating meeting then there's a fire meeting and … can't release any nurses either … And also there's somebody in the 136 assessment room that needs rotation of staff and that's going to affect when the nurses need to leave.'

Many staff conveyed an underlying powerlessness because developing strategies to manage rigid changes was futile, given the unpredictable ward environment. Some were supportive of a flexible and persistent team based approach,

Healthcare assistant

'If you've got the coordination sheet and you know who your patients are at the start of the shift as soon as they've had breakfast, you could go to each of those patients…Then you have to go to the other team members and say well look I'm taking him out for a walk then because if everybody else is doing it then you you'd have no staff on the ward but… if it can't happen at that time because there's an incident on the ward or because you've had to go to ICU to over the 136 suite or… you're on the emergency team, then you can reallocate it, you know?'

3. Poorly defined for the clinical area

Many staff (n=22) queried the relevance of new changes for their clinical areas. All participating team leaders commented on this issue, and given their key role in communicating changes to the team, this seems problematic,

Team leader

'Going round email at the moment about citizenship stuff that X.X.X. is doing and I'm a fairly literate person.....I think yet I cannot actually understand a) what this is about b) what the hell it's got to do with our core business when we haven't even got enough sodding money to run therapy groups on our inpatient wards and it just irritates the hell out of me'.

The emphatic quality of the language in this quotation clearly expresses personal frustration. These examples may belie a more widespread sense of injustice amongst colleagues, if they feel they are struggling to deliver unfeasible changes. Further, if team leaders are skeptical this may have more pervasive, negative effects on staff motivation.

4. No structure/direction, no rules, no plan

At the individual level, the effects of poorly defined strategies for new change initiatives were experienced as stressful,

Band 5 nurse

'On how to, you know, to manage, you know, the change because it's one of the anxiety provoking you know, tasks, you know, you know, but people are very scared of changes … Yeah, so you have to be able to, you know, to manage it otherwise you'll be creating more problems … And that's exactly, you know, what it seems it seems as if we're going through now'.

A lack of team unanimity seemed linked to limited collaboration between staff at the formulation stage of change planning and led to problems in the development of strategic thinking around changes,

Healthcare Assistant

'Yeah it's perfectly workable but I think changing you know - putting health care assistants on separate shifts, reducing the staff not supporting the people that are doing it and not really negotiating with the nursing team about this situation and finding out if that's what they wanted~~~. Because they're the people that are actually on the front line, not the manager I think that's what was that's what was lacking'.

When one ward developed a therapeutic activities programme, a structured approach over a longer time frame, with high levels of staff and patient engagement produced more positive results,

Team leader

'We had talked to the patients there as well … and we drafted I drafted a protocol around it and … you know, the purpose of it, the time, what the idea behind it all that stuff - got the research - and then we just started it. We just said right, got to do it Monday - and we did it and how we developed it further was, we looked people started to … wondering about not really knowing what to do so we had to develop it and develop it so I then drafted some guidelines and that was in consultation staff and patients again'.

5. Don't know what to do, how to do it

Reflecting Schein's (1996) theory, learning anxiety also appeared as a barrier to change. High numbers of different staff (N=27) described feeling anxious because they did not know how to deliver new changes,

Band 5 nurse

'It dissolved again because we didn't have enough patients and there was always something going on which meant really I couldn't assist [name of colleague] so she ended up running the group by herself she did one or two and then her time was taken to do other things to do urgent … assessments, that sort of thing - so it didn't work out again for some of the groups to run with unqualified - if the qualified are anxious, they don't know what to do, how can we pass it onto the unqualified?'

Rather than addressing problems, it was more common to withdraw from them,

> *Band 5 nurse*
> 'As for staffing I think it's difficult because skills wise people are reluctant to take some groups such as the creative writing if people aren't really sure what's happening with that group then they try and avoid it.'

This suggests that those in more junior positions staff may feel less confident about some changes than senior staff. These data also reflect communication concerns and may indicate a wider issue of psychological safety (Schein 1996), whereby staff may not feel able to express their lack of confidence.

6. Conflict

At the strategy stage, inattention to fostering group consensus and resolving conflict was cited as a barrier to change by the more senior staff,

> *Band 6 nurse*
> 'I think in hindsight we probably didn't necessarily brief some of the other band sixes with our ideas and some of them were kind of the main speakers against kind of implementing it'.

The amount of negative influence with a demotivating effect that can be exerted by some members of the team was also noted,

> *Team leader*
> 'I'd got staff members who I thought had some influence who were kind of pro this and on the day they were just very quiet they didn't say a word they were kind of leaving it to me to kind of sell this to everybody else, I then had some staff members who were quite concerned about it'.

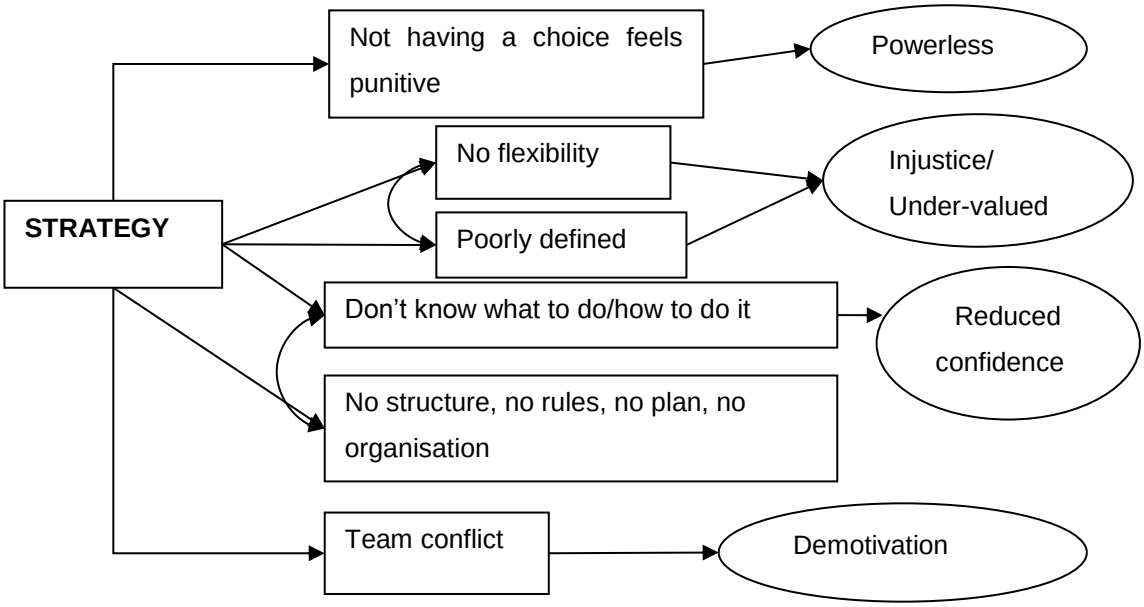
Playing to peoples' strengths and collaboration were cited as an enabler,

> Team leader
> '… rather than me just say right this is what we're going to be doing like it or lump it it's come from the patients and it's come from the team and people's interests - looking at their interests and getting them to volunteer things rather than just be told what to do'.

Overall, these data illustrate some of the effects of poor staff involvement in devising appropriate implementation procedures for innovations. Hierarchically imposed strategies for change led to feelings of powerlessness, injustice and feeling undervalued in more junior staff. Changes which were determined by director level staff were perceived as unfeasible or irrelevant by those working in wards. When the plans for new changes were unresolved amongst the team there was

evidence of conflict which de-stabilised motivation amongst the team. These ideas are illustrated in figure 4.5 below:

Figure 4.5: The strategy for managing changes



Items were developed for the measure as follows:

Box 4.5: DOMAIN 3: STRATEGY FOR CHANGE DELIVERY (9 items)

Not having a choice feels punitive (1 item)

1. Sometimes changes seem unfair to staff and patients.

No flexibility (1 item)

2. When we are working out how to deliver changes having flexibility within the shift to organise peoples time is important.

Poorly defined for the clinical area (2 items)

3. New changes need to be re-defined to fit in with our ward practices in order to be effective.
4. Written policies and protocols are not clearly understandable when changes need to be made which causes confusion.

No structure direction/no rules (2 items)

5. There is little guidance when it comes to developing a strategy to manage changes on my ward.
6. I find it difficult to keep up to date with information about the changes that are happening on my ward.

Don't know what to do, how to do it (2 items)

7. I do not really understand how to deliver some of the changes that are suggested by the management.
8. There is confusion in my team about how to manage some changes.

Conflict (1 item)

9. Staff tend to have different ideas about how to manage changes so following an organised plan is difficult.

DOMAIN 4: SUPPORT & MONITORING DURING IMPLEMENTATION PROCESS

There were six themes in this domain highlighting perceptions of limited managerial support when delivering changes. The perceptions of senior staff differed from those of more junior staff. Junior staff felt let down by unclear leadership. Avoidance and withdrawal from innovation were common responses.

Table 4.7: Support & Monitoring by band and references

THEMES (N)	**Staff grade**				**TOTAL references**
	HCA	**5**	**6**	**7**	
1. Poor or absent leadership, management **(N=22)**	18	16	22	26	**82 2 (items)**
2. No training, wrong skills, no progression **(N=18)**	5	17	17	10	**49 (1 item)**
3. No support/supervision **(N=20)**	25	16	16	18	**75 (2 items)**
4. Not wanting to address the negativity **(N=19)**	6	11	20	7	**44 (1 item)**
5. Poor staff motivation **(N=15)**	9	4	20	7	**40 (1 item)**
6. Poor staff performance **(N=16)**	4	4	18	11	**37 (1 item)**
TOTAL references (items)	**67**	**68**	**113**	**79**	**327 (8 items)**

1. Poor or absent leadership

All staff reflected that ineffective leadership was a barrier to change,

> *Healthcare Assistant*
>
> 'the manager didn't really, you know, it was left up to the nine to five staff to act as the manager in terms of, you know, communicating to the coordinator and the nursing team on each shift that we were supposed to be doing these activities because that's what the manager said that we had to do because that was our new role, you know, so … it was good for the patients and personally I enjoyed working with the patients but there wasn't really support - the idea, I think, really was to cut reduce staff whereas actual fact it didn't really work'.

However, ward managers who were perceived by more junior staff as being in the strongest position to provide support, also described poor guidance from their senior managers (above band 7 and external from the wards),

> *Team leader*
>
> 'the other thing is when we do ask for help from higher up - like about smoking - how far should we go in preventing people, what should we do and at what stage should we think about calling the police, the Trust didn't give us any answer on the ward about that'.

Having structures in place to support progress monitoring was considered helpful,

> *Band 6 nurse*
>
> 'I suppose like in monitoring really we do audits and things and, you know, if there are any shortfalls we would then, you know, remind people and then that's using clinical

supervision to find out what the problems are and/or just generally having chats with people to find out if it's a persistent thing that somebody is not adapting to this particular change – they're not doing that particular thing then yeah - we'll probably have a chat and find out what the problems are - why these things aren't happening and take it from there but yeah the audits certainly seem to …'

2. No training, wrong skills, no progression

Insufficient training was seen as a barrier in the change management process, particularly amongst qualified staff, as a lack of skills on the ward prevented changed from becoming embedded through knowledge transfer,

Band 5 nurse

'That's entirely, you know, what I'm saying that we haven't got any staff - not like that … Somebody ought to have been trained you know the staff to be able you know to train others'.

One staff member saw change as a way to develop new skills,

Healthcare assistant

'It was positive in as much as I did contribute more than I need to for my role and I got experience'.

3. No support, supervision

Reduced motivation was highlighted as an issue for those in more junior roles,

Band 6 nurse

'But HCA's sometimes are the most hard-done bunch of people with the least training who get the most burnt out'.

However, offering consistent supervision was a more general issue,

Band 6 nurse

'I'll be honest with you - the supervision will be done again when you have time … So, no – it's not very clear'.

There was also evidence that more senior staff wanted to take steps to clarify the purpose of supervision to engage staff in taking it up,

Band 6 nurse

'I think some people didn't quite understand what the purpose of clinical supervision is either - and we've certainly talked to a few members of staff about that and one in particular, you know, and I'm actually going to I've well that was another thing that came of the meeting I said to the staff that I would do a presentation on clinical supervision what the purpose of it is and so that I think that helps people'.

4. Not wanting to address the negativity/resistance

A fear of conflict prevented those in supervisory positions from challenging uncooperative team members,

> *Band 6 nurse*
>
> 'Because if you get someone in who will say ok, how are you getting on with your care plans, how are you getting on with this that and the other, and it's like are they going to get their backs up because they're forced to be doing something that … they didn't want to be doing'.

> *Band 6 nurse*
>
> 'In terms of performance issues some staff doesn't perform up to the standard… or they don't perform, performance management in terms of their behaviour they are very brash … rude'

5. Poor staff motivation

Neither was it clear to those in more senior positions how to address low levels of motivation,

> *Team leader*
>
> 'Staff motivation is the biggest thing I know … Because they're not willing to if they're not even motivated to do anything then there's no point in actually actioning something because you're going to meet brick walls every so often with them.

However, praise for a job well done was helpful in motivating some staff,

> *Healthcare assistant*
>
> 'You get recognised for what you do and when you have the consultant psychiatrist who actually says this role is integral, the service manager saying this role's integral, and these two people here are doing it are doing it very well and saying you are a credit to the service - you know, I mean, it's nice to hear.'

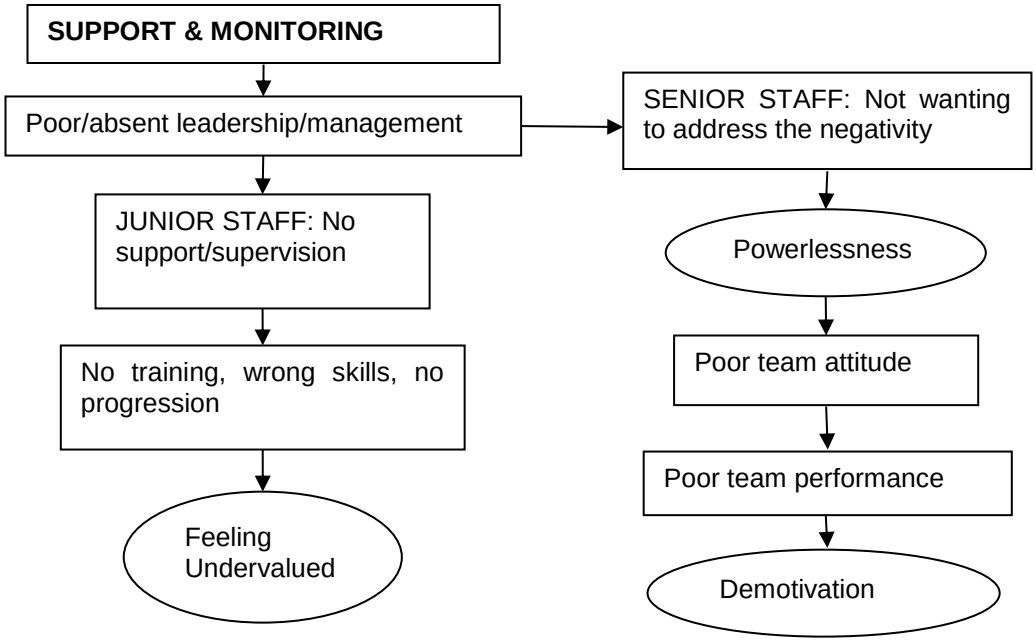
6. Poor staff performance

In cases, where poor performance was addressed, this was clearly demotivating for the staff involved, and had little perceived benefit,

> *Band 6 nurse*
>
> 'And you go back, and you audit two weeks later and this nurse has done this, this nurse has done this, this nurse hasn't done this so you ask them to do it again, and you go and audit again and then you kind, of you know, why haven't you done this, you know, discharged yesterday or something you say, but nothing was done … Don't need to do that and it's, they turn round and kind of go, ok then do we need to have you performance managed or do I just not bother asking you to do anything ever again because I know it'll not get done and if you can sleep at night more power to your elbow'.

Ineffective leadership may be a factor that increases resistance and negativity towards innovation amongst the workforce. In these data, staff reported poorly coordinated changes and infrequent supervision. When senior staff lacked the confidence to tackle negative staff attitudes, performance was not addressed. This led to feelings of powerlessness and demotivation amongst senior staff. These ideas are illustrated in figure 4.6 below:

Figure 4.6: Support & monitoring when changes are in process



Eight items were developed using these data:

Box 4.6: DOMAIN 4: SUPPORT & MONITORING DURING IMPLEMENTATION PROCESS (8 items)

Poor or absent leadership, management (2 items)

1. We are told to make changes but little practical support is offered to help us.
2. It is important to have the support of all the senior members of the team if change is to be implemented successfully.

No support/supervision (2 items)

3. I think that the reduced number of staff that we have on the ward on each shift is a major barrier to implementing changes successfully.
4. Change is more likely to be successful on my ward if a senior member of the team audits our progress.

No training, wrong skills, no progression (1 item)

5. We often work with agency staff, which makes it harder to deliver the changes that we have planned as a team.

Not wanting to address the negativity (1 item)

6. I don't think it is my role to challenge whether team members are actively performing the changes that we have discussed and agreed.

Poor staff attitude (1 item)

7. I don't think it will make any difference if I challenge staff who are not motivated to help with making changes.

Poor staff performance (1 item)

8. When staff do not perform up to the standard that is necessary to ensure changes are successful nobody challenges them.

DOMAIN 5: TEAM DYNAMIC AND THE CHANGE PROCESS

Team climate is reported to play a role in whether staff enjoy their work (Ward 2011) as well as how effectively they practice (Bowers et al, 2011), and innovate (Anderson and West 1998). Past evidence linking how staff link team relations to innovation is lacking. However, the findings in these data show associations between reduced innovation, a difficult working environment and a negative team dynamic.

In this domain, six themes described the team dynamic. How staff interpreted team relations during changes is of interest in these data. Staff expressed some fragmentation and conflict in their relationships with colleagues. This was mirrored both by instability in the acute ward climate, and by changes to the roles of band five nurses and health care assistants in practice.

Table 4.8: Team dynamic by band and references

THEMES (N)	Staff grade				TOTAL references
	HCA	5	6	7	
1. Unfair task allocation **(N=15)**	19	7	7	11	**44 (1 item)**
2. Sub-group dynamic **(N=17)**	15	7	23	11	**56 (2 items)**
3. Role demarcation **(N=14)**	15	11	3	7	**36 (1 item)**
4. Individuals and personality **(N=17)**	13	5	25	10	**53 (2 items)**
5. Staff feel threatened, dumped on, some are doing it some are not **(N=23)**	16	9	21	15	**61 (2 items)**
6. Poor teamwork, poor team cohesion **(N=19)**	16	9	19	19	**63 (2 items)**
TOTAL	**105**	**53**	**110**	**77**	**313 (10 items)**

1. Unfair task allocation

The literature reports that qualified staff now have increased administrative tasks and unqualified nursing staff are engaged in therapeutic activities with service users for longer time periods than qualified nurses (Bee, Richards et al. 2006). In these data, a whole team approach was regarded positively by some qualified staff,

> *Team leader*
>
> 'A lot of the times a lot of things are put on the nurse in charge - its, its all kind of - ask the nurse in charge, which isn't always good. So, they're quite positive about it actually and I suppose the workload would be shared out equally because it wouldn't just be one health care assistant doing for the rest of the week it would be whatever shift people are on - they'll be allocated.

However, changes to the nursing role and to task allocation appeared to cause a negative dynamic amongst staff with associated feelings of unfairness,

> *Healthcare assistant*
>
> 'Because, and I mean we've heard, you know, and I don't know if X.X.X. [name of colleague] said, but people have said, 'I went to university for three years - if you expect me to make beds and clean' … You know I mean, when you, you know you hear people saying oh about team, teamwork and all that - you wouldn't know team work if you were hit by Man United in a bus'.

> *Band 6 nurse*
>
> 'And the turnover of patients is quite high so there's always – so you would catch up the way we do it now – you would catch up and see your people in the morning and say hello – how are you – is there anything on your mind that you badly need to talk about? So they'll have like 5 or 10 minutes and that's about it and everything else is directed to the unqualified to do, which is sadly not the right thing to so, because you should really spend a bit more time with your patient, but that's how – how we are doing it now'.

These data highlight feelings of resentment between subgroups, which may be problematic in change delivery, particularly amongst the more junior staff, who are most likely to be involved in implementing improvements.

2. Sub-group dynamic

These subgroup divisions, which were widely visible through the data highlighted issues with trust and communication. When changes were deemed unfeasible, staff preferred to keep their concerns within their subgroup,

> *Band 5 nurse*
> ‘But in general principal, a lot of the staff have discussed this saying that they’ve actually maybe they’ve not discussed it with the ward manager, because it’s something I feel that their kind of talking about within themselves’.

In principle, there was agreement that a united team would be more successful in delivering changes,

> *Band 6 nurse*
> ‘The team has to has to come together and be responsible for it, not if I’m not here XXXX won’t do it or XXXX won’t do it but everybody has to be in accord that it’s going to take place.

3. Role demarcation

Often those at the bottom of the hierarchy were given the responsibility for delivering changes but they themselves had limited agency. In the next example, a healthcare assistant describes how she was given the role of running groups full time, but when qualified staff running the shift wanted her to perform other tasks this caused friction. She describes how qualified staff responded to her,

> *Healthcare assistant*
> ‘You know who are, you, your only a health care assistant, you know, I’m running the shift, you do what I, you know what I mean, so it was just I have one example, as you know, that one of the nurses got quite … with me wouldn’t speak to me for ages and it actually put a lot of pressure on me really’.

4. Individuals and personality

As well as by hierarchy, the team dynamic was also affected by personality. Individuals across staff grades with influence were able to both help and hinder changes,

> *Healthcare Assistant*
> ‘That’s in the matter of individual - if they are interested then, then come on’.

The power of individual staff indicated a lack of standardisation across practice in respect of performance management, where staff suggested that some seemed able to pick and choose what to do according to their preferences,

> *Band 6 nurse*
> 'If kind of get three people who are really motivated and, and want something to work then it will work but doesn't necessarily – I think it takes one person not to want it to work and they can make it not work'.

This echoes the powerlessness previously expressed by the managerial staff,

> *Band 6*
> 'It's I suppose it's it is delegating to people you know … And I think it depends on the person and their kind of personality'.

5. Staff feel threatened, dumped on, some are doing it some are not …

A lack of group consensus at the beginning of periods of new change appeared to contribute to poor team cohesion over time. Staff described inconsistencies in performance, as some staff followed change strategies and some did not. If this negatively affected the ward climate, this increased anxiety and affected trust amongst colleagues,

> *Band 5 nurse*
> 'Yes, eventually it resulted in that because you have some staff who were not being attacked or who were not the focus of the, the violence … And you have some that were the focus of the violence, maybe because they tried to enforce the rules and regulations and some were very relaxed with it and some …'

6. Poor teamwork, poor team cohesion

Over time, staff described how poor team cohesion, perpetuated by observable demotivation amongst colleagues, lowered performance and prevented change,

> *Band 6 nurse*
> 'So we weren't too forceful initially, I think we started being very - you have to do it, this is a time, do not answer any phone, you have to do it, but then when the ward got more difficult and more challenging and there was pressure for beds and all that the qualified started not doing it … And then it kind of cascaded down so people said well if they're not doing I'm not going to do it'.

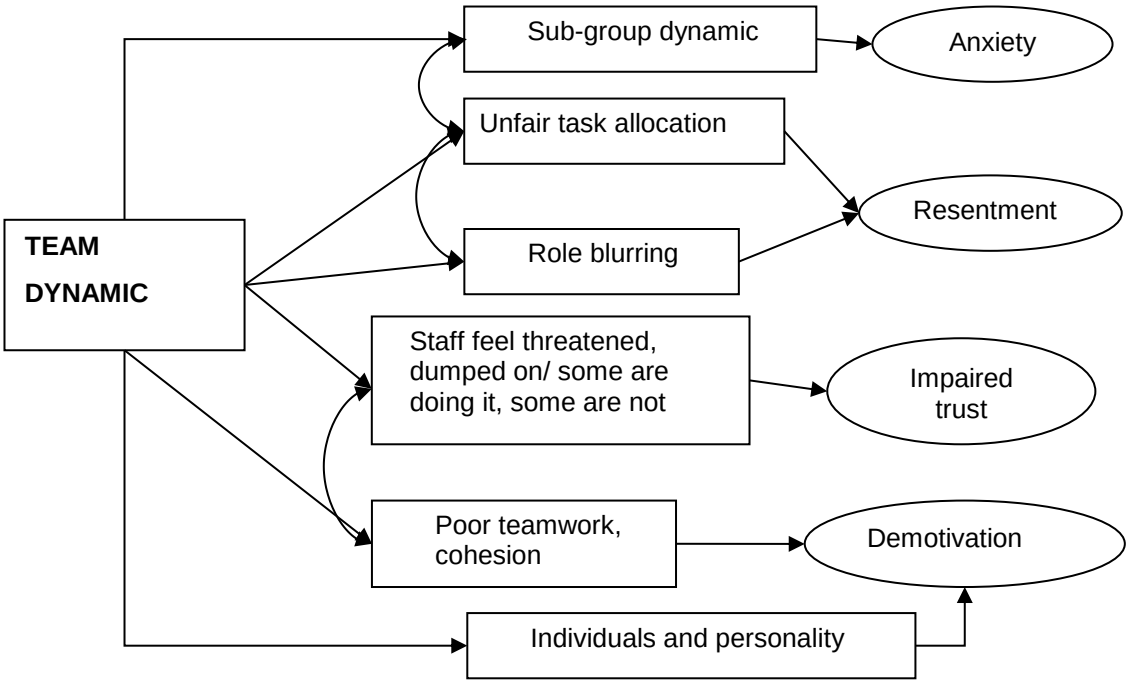
Teamwork was regarded more positively by unqualified staff, on wards where qualified staff contributed to both practical as well as administrative tasks,

Healthcare assistant

'The whole point of it is teamwork and making sure everybody is … you wouldn't allocate in such a way that only the HCAs will do it - even if it's the smallest thing like laying a bed or preparing a bed for a client or new admission you'd see that the RMNs were going to prepare the bed which is which is good because it's not the task for only the HCAs.

These data suggest that a negative nursing team dynamic can increase perceptions of barriers to change. Staff were clearly aware of a hierarchy in the team and appeared to find more support amongst their peer group than through supervisory structures when voicing concerns about the way that changes were managed. This may indicate underlying feelings of anxiety towards innovation (Schein 1996). Staff also observed poor team cohesion around changes; particularly where team members were not all felt to participate equally in change delivery. If the result of this was increased volatility in the ward environment, then team trust was affected. Many staff noted a powerful effect of certain demotivated individuals on the change trajectory if they did not believe that the changes were justified. These ideas are expressed in figure 4.7 below:

Figure 4.7: Team dynamic during the change process



Items for the measure were constructed according to these data as follows:

Box 4.7: DOMAIN 5: TEAM DYNAMIC DURING THE CHANGE PROCESS

Sub-group dynamic (2 items)

Role demarcation, blurring (1 item)

1. I like to take on challenges outside of my role description to help to ensure changes happen.

Planning how to manage changes is difficult because of disagreements between team members on my ward.

2. I do not always feel that all members of the team take ownership of changes that need to be made which means that the workload is not evenly distributed.

Unfair task allocation (1 item)

3. The different attitudes of the team prevent consistency when it comes to making changes.

Poor teamwork, poor team cohesion (2 items)

4. Organising changes so that each team member is responsible for specific tasks during the shift makes change happen.
5. When it comes to implementing new ideas staff make excuses for why they have not done it.

Individuals and personality (2 items)

6. I get the impression that some staff don't have any interest in helping to make changes to the ward to improve things.
7. I think that staff feel worn out with having to make so many changes and this affects their performance.

Role demarcation, blurring (1 item)

8. I like to take on challenges outside of my role description to help to ensure changes happen.

Staff feel threatened, dumped on, some are doing it some are not (2 items)

9. When some staff do work hard to ensure change happens and some do not it hinders success.
10. I get the impression that some people do what they think they have to do on the shift, but they don't want to go the extra mile to ensure change happens.

DOMAIN 6: RESISTANCE TO CHANGE

Certain aspects of ward climate, such as violence, poor staffing and administrative intensity, that in these data staff perceived as barriers to change, are known acute ward issues both in this country (Jenkins and Elliott, 2004) and around the world (Severinsson and Hummelvoll 2001, Cleary 2004, Hanrahan, Aiken et al. 2010, Ward 2011). These data develop previous literature by linking issues of ward climate to problems with innovation, specifically.

The *resistance to change* domain was highly referenced in these data, indicating its importance to staff. This domain described the determinants of resistance according to staff. Both Lewin (1951) and Schein (1996) refer to the phenomenon of resistance in their work. They conceptualise resistance as a result of unmet needs amongst groups and individuals in the workplace. Schein (1996) also suggested that at the individual level, resistance might be a defensive response born from anxiety. In these data, staff described the impact of organisational/environmental barriers on their responses to change. Understanding more about how staff conceptualise resistance may be useful in highlighting where organisational and systemic problems lie and how they may be addressed. Emotional and psychological side effects of change also emerged through these data, as staff identified both individual and team behaviours which prevented change. Therefore, staff conceptualisations of resistance also afford some insight into morale, and how that might be

addressed either at the ward level or more widely. Eighteen themes contributed to 30 preliminary items on the measure.

Table 4.9: Resistance by band and references

ORGANISATIONAL BARRIERS

THEMES (N)	Staff Grade				TOTAL references (items)
	HCA	5	6	7	
Environmental Instability					
1. Acuity **(N=24)**	20	14	19	10	**63 (2 items)**
2. Safety/Violence/Risk **(N=16)**	7	10	32	12	**61 (2 items)**
3. Incidents **(N=13)**	4	11	7	2	**24 (1 item)**
Work Pressure					
4. Staffing **(N=28)**	48	34	37	13	**132 (3 items)**
5. Volume of work **(N=26)**	31	32	29	28	**120 (3 items)**
6. Poor task management **(N=26)**	24	37	35	24	**115 (3 items)**
7. Patients resist **(N=18)**	34	4	19	8	**65 (2 items)**
8. No resources, money **(N=13)**	15	9	5	14	**43 (1 item)**
9. Physical Environment **(N=16)**	6	13	12	4	**35 (1 item)**
External factors subtotal	**189**	**164**	**195**	**115**	**658 (18 items)**

STAFF BARRIERS

THEMES (N)	Staff Grade				TOTAL references (items)
	HCA	5	6	7	
Team Perspective					
1. Inertia, a dead end, hard starting (**N=10)**	1	9	1	9	**20 (1 item)**
2. Culture/ way of thinking **(N=14)**	3	7	10	15	**35 (1 item)**
3. Don't want to get involved, keep quiet **(N=12)**	8	13	9	9	**39 (1 item)**
4. Teammates resist **(N=25)**	18	34	17	27	**96 (2 items)**
5. Set in their ways **(N=15)**	3	5	6	13	**27 (1 item)**
6. Not fair, no reward, negative outcomes **(N=17)**	14	18	10	8	**50 (1 item)**
7. No benefit **(N=20)**	16	7	12	16	**51 (2 items)**
Individual Perspective					
8. Passing the buck, avoidance, reluctance **(N=16)**	16	10	3	5	**34 (1 item)**
9. Change is not possible, is pointless, won't work **(N=19)**	12	14	4	11	**41 (1 item)**
Staff factors subtotal	**91**	**117**	**72**	**113**	**393 (11 items)**
TOTAL REFERENCES	**280**	**281**	**267**	**228**	**1051 (29 items)**

ORGANISATIONAL BARRIERS

Two super-ordinate themes were developed within the organisational barriers domain: 'environmental instability' and 'work pressure'. These themes were densely saturated, with high agreement by all participating staff.

Environmental instability

Environmental instability was characterised by the presentation of the client group on the ward, either through symptoms or through unsafe behaviour; and also by the rapid turnover of service users on the ward. When describing the effect of environmental instability on their ability to deliver changes, staff conveyed a sense that the ward itself, has a metaphorical 'life' of its own, beyond individual control, hence they were often reacting passively to proceedings, rather than purposefully.

1. Acuity

Overall, 24 staff referred to 'acuity', using the term as a descriptor for the high turnover of patients through the service and the severity of symptoms upon admission. Acuity was perceived as preventing change,

> *Band 5 nurse*
>
> 'Because there was other things to be done so we tackle that we said no you need to do it get somebody with you and then obviously as that started flowing again X.X.X. [name of interviewer], that went out of the window we started well, but then the patients start change - we had more explosive patient, more difficult patient, and then it went - it just didn't happen'.

Although the literature shows that violence leads to stress and decreased morale in mental health nursing, (McGeorge, Lelliott et al. 2001, Bowers, Simpson et al. 2003, Kindy, Petersen et al. 2005, Currid 2009, Totman, Hundt et al. 2011) any effect on innovation is not well documented. These data clearly show that staff feel that a volatile ward climate prevents change.

2. Safety, risk

Ward staff tended to prioritise safety over any planned changes. If they felt that changes were a particular resource burden (e.g. running groups/therapeutic activities), they were more likely to be sidelined,

> *Band 5 nurse*
>
> 'I think it very much depends actually on what's happening on the ward at the time, I think it's - and I think the dynamics within on the ward changes as the client group changes, so I think the challenge is to make it a consistent practice regardless of the dynamics kind of going on within the ward'.

3. Incidents

In particular, staff felt that incidents prevented change and lowered morale,

Band 6 nurse

'She's off sick because of that incident - nobody can shed light what is exactly happening because we don't know, but she's been on long term sickness for a long time so that is another thing, then we had another lady who resigned because of other investigation that was going on so, yes, morale goes up and down all the time'.

Work Pressure

Jenkins and Elliott (2004) found that qualified staff experience more stress associated with workload than health care assistants. Although staffing shortages are a well-known stressor for staff, their link to innovation is not well documented (Cleary 2004, Brennan, Flood et al. 2006). In these data, staff perceived workload and low staffing levels as barriers to change, as well as other work place issues including poor task management, patient motivation, funding and the physical environment on the ward.

4. Staffing

Low staffing levels were seen by all staff grades (28 out of 32 staff) as a major barrier to change, with strong links to reduced safety,

Healthcare assistant

'I was called to attend a 136 suite and then when I left that's two, two member of staff are left on the ward … The bleep went and they got to the ETL [emergency team leader], got to know that I'm from X.X.X. [name of ward] … And the bleep~~~from X.X.X. [name of ward] and I told him that we are three, so if you call~~~to come it means one person will be left'.

High numbers of temporary staff affected motivation in the direct care group. This may underlie a concerning performance issue linked to how work is allocated on wards. This quote (from a permanent staff member) describes their experience of working with another permanent staff member who was working on a 'bank shift' (i.e. a permanent staff member accepted an additional unstaffed shift as overtime).

Band 6 nurse

"I was informed of a nursing assistant was working on the ward here and was doing a bank shift and was being asked to kind of escort a patient out or something and the response was why would I want to do that why would I want to work on my bank shift? … or you … oh, it was - you expect me to work on my bank shift?"

5. Volume of work

Staff also linked low staffing levels to the volume and intensity of their workload. When describing her involvement in the group that she led on, a nurse commented,

Band 5 nurse

'And it was after a few months of that, that the timetable increased and because of time constraints for X.X.X. [name of colleague] and everyone, its ended up more me taking more of a role in it and unfortunately, I'm not always here on the days that it's happening, and even on the days that I am sometimes it's just, well, I'm too busy to be involved in it.'

Twenty six staff, whether their role in the change process was managerial and strategic or directly patient focused, described feeling unable to cope with the workload, and consequently demoralised when delivering changes,

Band 6 nurse

'I was a charge nurse then, and then my deputy manager went off sick as well, and as soon as my, yeah well, my deputy manager was off sick actually … and then my manager, as soon as I, I started the post of acting up as a deputy manager, my manager three weeks down the line went off sick for a very long period so everything was left to myself a charge nurse who has just been pushed off to a deputy manager to, to you know to deliver such major changes … It was so stressful'.

These themes of stress and anxiety in relation to workload and safety are of interest as they may also contribute a barrier to change. Staff also described an emotional effect of dealing with patient turnover and the pressure for beds,

Band 5 nurse

'Most wards saw me as a very supportive person on, on all the wards I'm always quite supportive and I was protective the minute I changed to heading up the bed management effectively people were very cold to me on the phone because all I was doing was imposing work on them'.

6. Poor task management

Twenty six staff described situations where other daily ward tasks were prioritised over delivering changes. This was seen as a barrier to consistency when implementing change,

Healthcare Assistant

'Sometimes someone couldn't turn up on the shift ~~~~or someone had to do an escort to go somewhere, so I'm asked also to do, to you know, then finish the thing and stop what I'm doing~~~~after the group instead of remaining there and having more time to prepare the next one. I have for example, to cover - be there or cover the meal time so, so those things like because of the business, and on occasion also the short of staff or more work than be normal number of staff can, can manage this it's like you have to also be within numbers'.

Frustration was openly expressed and there was also a sense of resentment if motivated staff felt that teammates resisted changes,

> *Band 6 nurse*
> 'Yeah that's it and then it's difficult because the motivated people are like well why are we not doing this today and then you get that kind of lack of consistency … And I think then people get quite angry about that and yeah'.

7. Patients resist

In relation to the planned change to implement a programme of therapeutic activities, staff suggested that the patients themselves were 'resistant' to changes, which affected staff motivation,

> *Healthcare assistant*
> 'But like I say some patients just don't want that interaction some patients are too poorly to have the interaction'.

> *Healthcare assistant*
> 'Well we have all of that on our ward but I think the problem is that most of the time the patients aren't motivated you know. They just don't want to attend any of the groups you try and encourage them it's really an uphill struggle on our ward to get the patients to do anything at all you know'.

However, as discussed by Menzies Lyth (1988) and (Brennan, Flood et al. 2006) there may also be a defensive requirement for staff to protect themselves from the emotional demands of their role. As one ward manger commented:

> *Team leader*
> 'I've met with them to talk about protected engagement time and restarting it and they… they've even suggested times of when it would be probably the most quietest to do but, I mean, a lot - I don't think all of them went into the kitchen and had coffee but I think some of them … you're on a ward with the people some people would just say 'f' off I don't want to talk to you, which is fine, but then I suppose if you keep getting that all the time from the same person then you kind of think well I'm not going to bother asking them today'.

This may also explain how some demotivation develops. Again, this reflects the theory proposed by Schein (1996), whereby, despite a realisation that current work practices are not effective; and some evidence of guilt showing awareness that change must be required to improve; there is a lack of psychological safety. Overt expressions of the need to avoid interaction with service users to prevent emotional distress, given how integral this is to the role of mental health nurses, were not present in these data. However, staff did describe feeling rejected by service users if they did not want to talk to them:

Band 5 nurse

'It came to a point where I think when most of the patients didn't want to engage … Of course we couldn't enforce them … So you go introduce yourself and say we'll be meeting at such and such a point when the time comes and say well don't, I don't want to talk about anything … Which makes it difficult … And very disheartening as well at times'.

Interestingly, the majority of comments on this theme were made by staff in direct care roles, again perhaps because they interact more frequently with service users.

8. No resources, money

Financial restrictions were also implicated. Staff described the need to save money because of Trust specific over-spending as a barrier to change,

Healthcare Assistant

'I don't think that helps that knowing that all the time you think you're doing a good job that somebody is thinking now we need to save money let's cut this service and cut that'.

9. Physical Environment

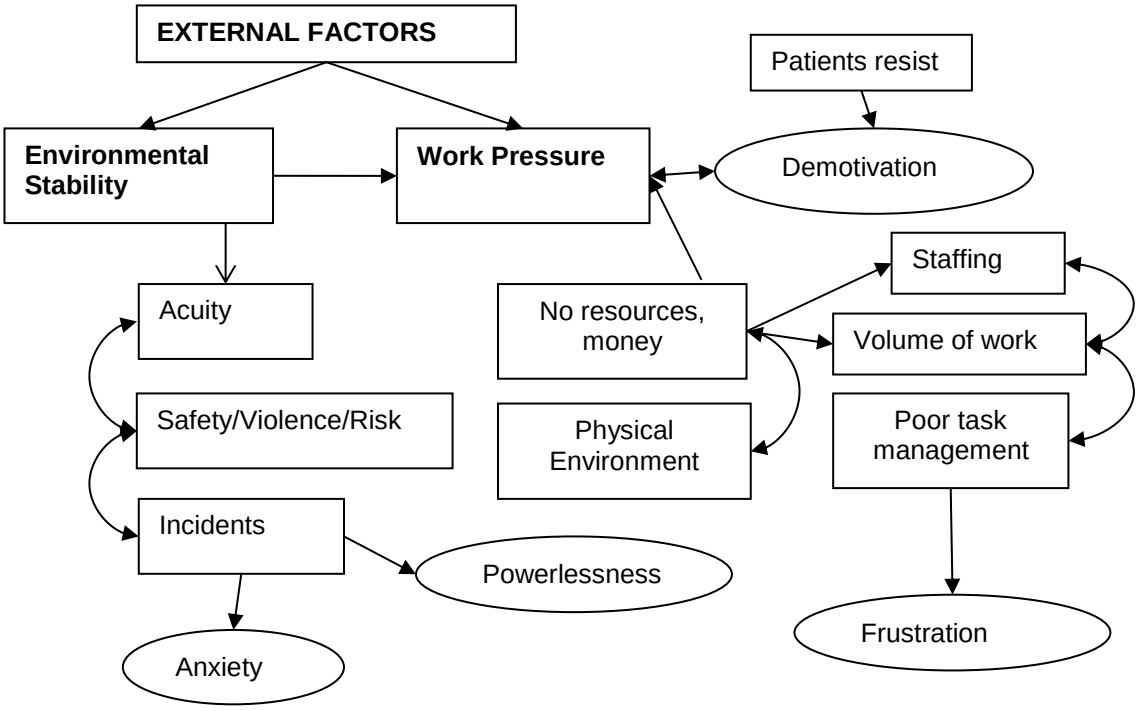
Barriers to change were also observed in the physical environment, with no discernable differences in response between staff grades,

Team leader

'We were the, the most restricted ward in the in the in reference to area … We didn't have a conference room … We didn't have a designated activities room we didn't have designated interview rooms'.

These data clearly illustrate an effect of ward climate on staff perceptions of barriers to change. Some staff appeared overwhelmed by the atmosphere on the ward expressing a latent sense of powerlessness. Constraints of staffing and other resources affected staff motivation. Staff linked work pressure to financial difficulties within the NHS, suggesting that the physical environment did not always support innovation, such as the introduction of therapeutic groups. Inconsistency also frustrated motivated staff. Many staff felt strongly that the daily pressure of their roles left little room for implementation change. These ideas are expressed in figure 4.8 below:

Figure 4.8: Resistance to change: external factors



Items were created for the measure according to these data as follows:

Box 4.8: DOMAIN 6: RESISTANCE TO CHANGE: EXTERNAL FACTORS (18 items)

Environmental Instability

Acuity (2 items)

1. When the ward is acute and chaotic it is difficult to manage all the changes that we are expected to deliver.
2. High levels of acuity impact decrease the priority with which we can respond to changes that need to be made.

Safety/Violence/Risk (2 items)

3. The need to manage risk takes priority over delivering changes on the ward.
4. Sometimes changes are made that throw up new issues around patient and staff safety, which makes them harder to manage.

Incidents (1 item)

5. If there is a crisis on the ward, we have to respond to it as a priority so other planned work is less likely to happen.

Work Pressure

Staffing (3 items)

6. When it comes to disseminating information to the team about changes accessing staff who are not there on the day is a barrier to delivering changes successfully.
7. Often, the volume of work that we have to do per shift is more than we have staff to cope with which means that planned changes are side-lined.
8. Maintaining safety removes staff from the ward, which affects our ability to deliver changes.

Volume of work (3 items)

9. There seems to be a lot of changes that increase my workload and make my life harder.
10. I feel so overwhelmed by the amount that needs to be done per shift that making changes seems too difficult.
11. Even when I can see the benefits from changes the amount of work involved makes it seem impossible.

Poor task management (3 items)

12. Even if we start out with a plan which incorporates planned changes other ward business ends up taking priority.
13. Interruptions prevent consistency when it comes to making changes.
14. When it comes to implementing changes, we start off quite well and then they fizzle out over time.

Patients resist (2 items)

15. It can be difficult motivating patients to get involved with planned changes.
16. It can be disheartening for staff when the patients do not want to get involved in changes for the better.

No resources, money (1 item)

17. The financial constraints of my ward affect our ability to successfully make changes.

Physical Environment (1 item)

18. We are asked to make changes that apply to the whole organisation but which are not supported by the physical environment on my ward.

STAFF BARRIERS

Schein (2004) described organisational culture as linked to a specific group, increasing in strength where homogeneity of ideas exists, and based on visible objects, shared values and assumptions (which are often observed from team behavior, and which can develop into values). In these data, a culture of staff resistance to innovation was described both at the team level and from an individual perspective (i.e. how staff felt they themselves, responded to change).

Team perspective

1. Inertia/ a dead end/ re-starting is hard

Senior staff described difficulties in creating momentum for change adoption. This was particularly problematic at the inception of changes when the need to engage and motivate a critical mass of staff was greatest,

> *Band 6 nurse*
>
> 'I generally think some people just aren't particularly quick on the uptake sometimes about doing new things and then you know it'll be like … what's this still doing you know, we need to have got these out, or sent these, or signed these, or something like that and it's without that kind of constant kind of involvement - it's hard to kind of see things kind of through'.

2. Culture, way of thinking

Some staff described a shared team perception that innovations were an unnecessary 'extra',

Healthcare assistant

'I think some of the nurses do, do them, not all of them - there are a minority of nurses that will get involved with activities and will want, you know, it seems to be something which is a bit sort of an extra -it's not really, it's not really seen as an essential part of, of the ward at all'.

3. Don't want to get involved

As a perceived majority of staff avoided innovation, this strengthened the assumption that avoidance was acceptable,

Band 6 nurse

'And they said well, but they didn't say anything, that's the thing - they don't say anything, there's always this passive resistant … On their part you don't get anything and no matter how much you say, to be honest it's got to a point that, we don't, it's what you get - what you get - we don't challenge that anymore, we leave it … And we've got to that point and because your attention is taken with other things that takes priority'.

4. Teammates resist

Notably, the language used to describe team resistance was combative,

Healthcare Assistant

'It was a bit of a battle to start off with in terms of introducing it'.

Band 6 nurse

'It's no, and it's, and it's kind of almost used as a weapon sometimes as well, they'll say - one of the things, the amount of staff that you'll have in the office and the need for them to be there and you know, oh I can't go out of the office because I'm busy doing care plans'.

Team leader

'I think the biggest challenge has been the battle with the staff - finding out what who's who and what they're like and how they work best and what you know'.

There was also evidence that over time teams showed resilience in relation to changes,

Team leader

Because of the amount of negative press or kind of resistance that there was in the first instant it, it's surprising that that people are, are working with it. And they do, do surprise me you know from time to time that people can actually cope with it'.

5. Set in their ways

Some staff linked resistant attitudes to duration of employment,

Healthcare assistant

'It does take a while for it to sink in if people are used to a certain way of working.'

6. Not fair/negative outcomes

If patients were adversely affected by innovation, then staff motivation was badly affected. In such circumstances as the introduction of the smoking ban, staff described feeling a sense injustice because it was perceived as negative for the patients, and also for staff who spent time with them on the ward,

Band 5 nurse

'And we do have to have you know that place … we would not be talking about quality of care where and human rights when basic things are not like that you know are not properly you know handled … And so that's … a very, very big you know problem and even up to this moment as I speak to you there's not there's no clear cut policy'.

7. No benefit

Staff also expressed a sense of unfairness to certain changes, which were seen as part of an ongoing cycle of continuous change rather than being specific and with relevant benefits:

Band 6 nurse

'It (Agenda for Change) just felt like yet another round of huge turmoil and change that you know had happened already so many times in my career that was going to be earth shattering different and it's just another it's just like another pay review body giving you another set of rules to sort out another set of people … And it was just more crap actually'.

There is a tangible sense of frustration underlying these comments, which suggests that staff feel disillusioned and unrewarded for their work.

Team leader

'Because some things, some things, you can see a point, other things are kind of - look we're all in this together....Because we are … Yeah we'll have to do this … Yes we will, it's rubbish but …'

This sentiment may be a result of the way that change is managed in the NHS, because changes are infrequently embedded before new innovation is required. This creates a layering effect, which may increase a negative ward culture around innovation and may indicate burnout.

Individual perspective

In fewer cases, individuals described their own role as related to difficulties in embedding innovation.

8. Passing the buck, avoidance, reluctance

Low motivation was manifestly cited as an individual level barrier to change delivery,

Band 5 nurse

'And really you do have to justify why this group has not happened because sometimes it doesn't happen and there is no excuse you do have the staff to do it you just probably couldn't be bothered or there's no motivation.'

9. Change is not possible, is not good, is pointless, won't work

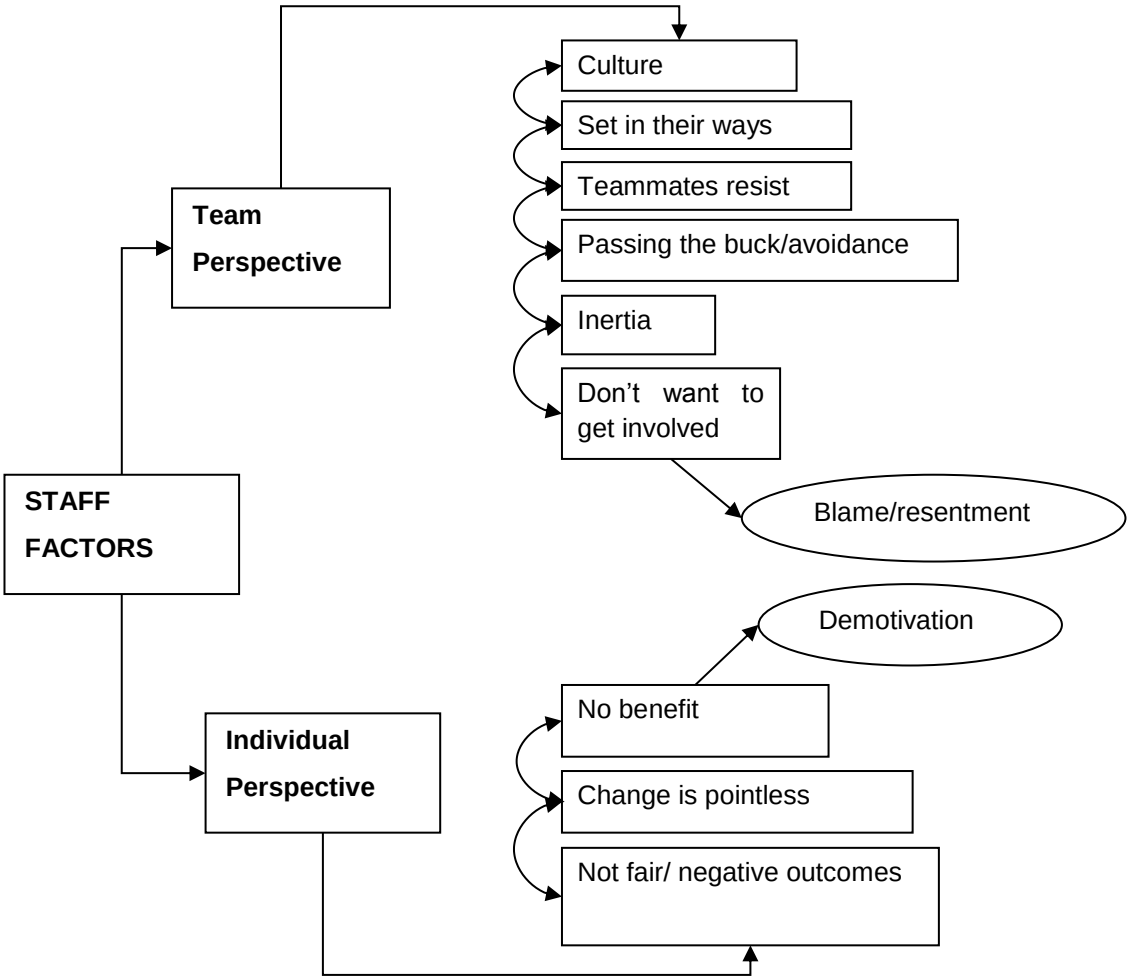
The emotional effects of this negative cycle of resistance were also visible in the responses of individuals, who identified their own feelings of emotional exhaustion,

Band 6 nurse

'It's about it's the whole approach and this is the bit the bit that I hate about change the most there are so many bloody changes but actually there is no scope to give people the, the tools the time and the money to effect the change they want it to be done on the cheap. The change is about you're not going to get anything extra while you're doing this it's just an extra piece of work you know. And it's a tick-box experience'.

These data suggest that staff were aware of both team and individual resistance to change. Staff described a team culture with a prevailing perception that change was stifled by demotivation. In this situation, blame occurred if staff did not see the point in adopting change because nobody else was doing so. Furthermore, staff felt resentment if they were aware that the ward could be improved but were powerless to drive changes forward. Both creating momentum to initiate changes was difficult as was maintaining momentum once changes had been implemented. Some staff felt that it was better to avoid changes completely than to try to tackle this difficult team behaviour. There was some evidence of burnout from changes being implemented too frequently. This may be a factor in the way that staff interpret the relevance of certain changes, which were perceived as having an adverse effect, either on the service users or on themselves. Motivation was affected under both circumstances, but staff were more likely to observe a sense of organisational injustice if they felt that changes negatively affected the client group. These ideas are presented in figure 4.9.

Figure 4.9: Resistance to change: staff factors



These data were converted into items for the measure as follows:

Box 4.9: RESISTANCE TO CHANGE: STAFF FACTORS (11 items

Team Perspective

Inertia, a dead end, hard starting (1 item)

1. I am aware of a perception amongst my teammates that there is no point trying to implement some changes because they won't work.

Culture/ way of thinking (1 item)

2. The culture of 'just getting through your shift' makes change less likely to happen.

Don't want to get involved (1 item)

3. I find it difficult to challenge staff who do not engage with team decisions to make changes.

Teammates resist (2 items)

4. Resistance can build in my team so that if some people stop engaging with planned changes it spreads through the whole team.
5. It feels de-motivating when some staff are resistant to change.

Set in their ways (1 item)

6. Some team members seem too set in their ways to embrace new ideas.

Not fair, no reward, negative outcomes (1 item)

7. It seems unfair that some changes do not seem to take into account patients' wishes.

No benefit (2 items)

8. It is not clear how all changes that we are asked to make will really benefit the ward.
9. When the patients respond negatively to changes it is stressful for staff.

Individual Perspective

Passing the buck, avoidance, reluctance (1 item)

10. I get the impression that some staff are happy to 'pass the buck' and let others take the lead in making changes.

Change is not possible, is not good, is pointless, won't work (1 item)

11. It surprises me when people in my team think that some changes will not work.

4.4.2 **Data Saturation**

No new codes were created during the last interview in each group (healthcare assistant, band 5, band 6 and band 7), which indicated that the data were saturated.

4.4.3 **Different staff perspectives**

The number of references presented in tables four to nine provide some evidence that staff perspectives differed according to band, and also gives an indication of how staff in different bands regarded the importance of the themes. For example, as table five suggests, it is unsurprising that health care assistants were less aware of top down management strategies than qualified nursing staff, given they spend most of their time in direct contact with patients and very little time at a computer, reading emails. Staff from bands six (clinical charge nurses) and particularly seven (ward managers), showed more optimism towards changes than direct care staff (health care assistants and band five nurses). It is, however, useful to note that staff from

all bands referenced each theme at least once, which implies that all the issues are relevant to all staff grades. Although barriers to change may vary in how they affect each grade of staff, given their different responsibilities, this may be represented in a measure by using a scale. A Likert Scale format was chosen because it is known to have high uni-dimensionality, is widely known, easy to understand and easy to complete (Oppenheim 2000). The Likert scale followed a 5-point format (Strongly Agree, Agree, Don't know, Disagree and Strongly Disagree).

4.4.4 **Item reduction**

It was important to ensure that the length of the final measure was appropriate for staff working in a busy, acute ward environment, so repetitious items were removed. The measure was then designed in the following format:

4.4.5 **VOCALISE DRAFT: Staff Perceptions of barriers to change measure**

1. When it comes to change, information is disseminated effectively on my ward.
2. I find it difficult to keep up to date with information about the changes that are happening on my ward.
3. I would feel more confident about changes if we sat down as a team and planned how to manage the problems that come up.
4. When the whole team is consulted about new ideas for ward practices it increases our motivation to try to implement them.
5. Staff tend to have different ideas about how to manage changes so making an organised plan is difficult.
6. New changes need to be re-defined to fit in with our ward practices in order to be effective.
7. When we are working out how to deliver changes having flexibility within the shift to organise peoples' time is important.
8. When the ward is acute and chaotic it is difficult to manage all the changes that we are expected to deliver.
9. The culture of 'just doing enough to get through your shift' makes change less likely to happen.
10. It can be disheartening for staff when the patients do not want to get involved in changes.
11. Maintaining safety takes priority over delivering changes on the ward.
12. There seems to be a lot of changes that increase my workload and make my life harder.
13. I am aware of a perception amongst my teammates that there is no point trying to implement some changes because they won't work.
14. It is not clear how all changes that we are asked to make will really benefit the ward.
15. It seems unfair that some changes do not seem to take into account patients' wishes.
16. I get the impression that some staff are happy to 'pass the buck' and let others take the lead in making changes.
17. Resistance can build in my team so that if some people stop engaging with planned changes it spreads through the whole team.
18. I do not really understand how to deliver some of the changes that are suggested by the management.

19. I like to take on challenges outside of my job description to help to ensure changes happen.
20. I think it is my responsibility to challenge team members who are avoiding delivering the changes that have been discussed and agreed.
21. Change is more likely to be successful on my ward if a senior member of the team audits our progress.
22. Inadequate staffing is a major barrier to implementing changes successfully.
23. It is important to have the support of all the senior members of the team if change is to be implemented successfully.

Then, the draft questionnaire was then taken for two rounds of feedback from acute ward nursing staff.

4.5 Expert Validation

The characteristics of those who participated in the expert validation process are presented in table 3.10.

Table 4.10: Characteristics of expert validation participants

Group	Participant	Age	Band	Gender	Ethnicity
1	1	50	6	F	White British
	2	44	5	F	Mixed Race
	3	29	5	F	White British
2	4	33	7	F	White British
	5	27	6	F	Black Caribbean
	6	24	HCA	M	Asian Indian

The first group agreed that the measure had succeeded in capturing the themes that they brought up during the interviews, which indicated high face validity. They also commented on the format of the measure. The participants suggested revising the five-point Likert Scale format (Strongly Agree, Agree, Don't know, Disagree and Strongly Disagree); because they found that this did not allow them enough scope to make a decision about each item. There were also concerns that the 'don't know' option would encourage central tendency. A six-point scale was therefore preferred (Strongly Agree, Agree, Slightly Agree, Slightly Disagree, Disagree, and Strongly Disagree). These participants also made suggestions for the 'notes for completion" section at the beginning of the measure, as the intention was that it would be a self-report tool.

Notes for Completion:

1. Within the NHS approaches to practice often change. We would like to learn more about what staff think of this?
2. The aim of this questionnaire is to capture staff perceptions of barriers to change.
3. It can be useful to pick up on these barriers so we can see how to improve working practices when changes are implemented on wards.

4. Please complete the questionnaire based on your experiences of clinical changes that have already happened.

Finally, they made minor alterations to improve the clarity of the wording:

Example 1:

- When it comes to change, information is not disseminated effectively on my ward.

Altered item:

- When it comes to change, information is not circulated effectively on my ward.

Example 2:

- New changes need to be re-defined to fit in with our ward practices in order to be effective.

Altered item:

- New changes need to be interpreted to fit in with our ward practices in order to be effective.

The second group agreed that the measure did represent the current situation for ward staff, and made no further alterations. At this point, the questionnaire contained 23 items, which were answerable by a six point Likert scale. The total scores would therefore range from 23-138, with higher scores indicating more negative perceptions of the ward. It was entitled VOCALISE: Views Of Change and Limitations in In-patient Settings.

4.6 Ranking exercise

To complete the VOCALISE measure, participants (N=125) ranked the top three barriers to change on their ward. Inadequate staffing was seen as the most significant barrier to change as 77 staff voted for this barrier. Environmental/ward instability was the second most popular choice, with 40 votes. Poor leadership was chosen by 30 staff. All 23 items appeared in the top three most problematic barriers at least once. This suggests that the data produced during the interviews was reflective of the views of the wider staff group, and confirms that all 23 items should be included in the measure. Table 4.11 provides evidence that staff from different bands varied in their opinions of the top three barriers. These differences will be explored in more detail in the next chapter.

Table 4.11: The top three barriers to change

Top three ranked barriers	HCA (N=39)	Band 5 (N=58)	Band 6 (N=15)	Band 7 (N=8)
22. Inadequate staffing prevents changes being successful on my ward.	20	39	12	3
7. When my ward is acute and chaotic it prevents us from delivering change.	15	14	6	4
23. Poor leadership prevents changes happening on my ward.	8	15	6	1

Some barriers were suggested which are not described by the items of the measure. Five participants felt that low motivation amongst staff was a key barrier to change. This theme, though not directly addressed by any single item, is reflected by items 9, 11, 15, 16 and 17. A lack of

money was also cited, but only by two staff. This theme was present in the interview data but too infrequently for it to become an item. There were some missing data as 27, 28, and 38 staff had not completed the ranking exercise in barriers one, two and three respectively. However, the scope of the exercise was sufficient to show that the participatory method was effective in representing the views of staff.

4.7 Discussion

The qualitative data were collected before any changes on wards were applied. They provided a useful snapshot of the mental health ward working experience for staff, particularly since the wider social context and culture of the acute ward setting was unlikely to undergo substantial alterations during the relatively short time period of this study. These data characterise a negative culture towards change amongst acute ward nurses in this inner city foundation Trust.

Barriers to change were expressed either manifestly or latently. Manifestly, staff described negative organisational and environmental influences on innovation. Inner context barriers included stressors in the ward setting, such as high volume of work, poor leadership, low staffing levels and violence clearly lowered morale. Staff also observed a demotivating culture of resistance to change which arose from the nursing team. The amount of influence exerted over the whole team by a negative few appeared to disproportionately affect the uptake of innovation by spreading resistance. Staff avoided acknowledging personal barriers to change, such as under confidence or reduced motivation but these, and other characteristics such as feeling undervalued and disempowered, emerged latently providing an informative subtext to these data. Whilst many staff felt that Trust driven changes and their associated burden were unfair, they were more accepting of wider contextual issues such as policy changes or limits in funding.

During measure development, analysis of the qualitative data revealed six over-arching domains, describing perceptions of barriers to change. They included communication, generation of ideas, strategy, support and monitoring, team dynamic and resistance. Themes were converted to items based on how frequently they were discussed during the interviews, so that themes with fewer than twenty references were not included. The items were constructed around perceptions of the group/ward to change and perceptions of the self in relation to change.

4.7.1 **The domains of VOCALISE**

All six domains relate directly to the current literature which was introduced in chapter 2 (Greenhalgh, Robert et al. 2004, Durlak and DuPre 2008, Damschroder, Aron et al. 2009). They tap issues of inner setting or inner context (where the intervention is to be delivered, which in this case, is the ward), the delivery process and the individuals involved, These data present a wealth of information about barriers to change in mental health wards, some of which may be reduced by developing or improving the systems in place to deliver changes.

The strategies suggested by staff in figure 4.10 reflected their experiences of difficult ward changes. It is acknowledged that these views represent only those of staff in one Trust and

therefore may not be generalizable to other NHS settings. However, given nursing staff from four different grades described a variety of different examples of change and their impact, the information yielded was nonetheless informative, and may be useful for future implementation strategies.

Externally developed RCTs (or research projects more generally) were not discussed by staff as an example of change to practice, perhaps because the DOORWAYS project was the first, large "staff-led" RCT to impact the inpatient wards for some years in this Trust. However, staff did describe changes to practice that were executed using a top down strategy, an approach that is commonly taken in the NHS, and one that was employed by DOORWAYS. Staff expressed a greater and more negative sense of injustice as a result of imposed changes over which they had no control. The most frequently discussed top down changes were implementing the 'no smoking' policy and introducing protected engagement times between staff and service users. There were also examples of reductions in staff numbers to increase spending efficiency. Two staff discussed the introduction of a new monitoring system for staff performance, and two described the impact of new electronic systems. One interviewee gave examples of incremental changes to the quality of care as a result of bed reductions.

In addition, staff brought up general, ward level changes to the daily running of the ward such as the move away from primary nursing to a team approach, introducing link workers, a daily community meeting, group supervision, and restructuring supervision approach. These changes tended to be decided and developed at the ward level, and were characterised by a higher level of staff involvement, but also higher levels of frustration where a wide consensus was not always achieved.

VOCALISE was developed to measure general changes to practice and as the items are derived from both top down and local level changes, it might be used to capture perceptions of barriers to change in different situations. There are some limitations with the scope of VOCALISE, which focuses only on negative perceptions. Had positive perceptions of change been included in the final measure, additional items might have reflected themes such as resilience towards change, which is not explicitly included.

Communication

Greenhalgh, Robert et al. (2004), Durlak and DuPre (2008) and Damschroder, Aron et al. (2009) cite communication as a key component of both the inner setting and implementation process. This draws from work by Rogers (2003) who argued that the success of implementation depends on effective communication channels within a social system. The data reported in this chapter showed that communication amongst staff on wards was fragmented (poor dissemination of information, infrequent meetings). Regular meetings may allow communication with some staff but not the entire group, because of the pattern of shiftwork in the ward. However, for those wishing to promote changes, understanding how to develop effective communication channels

may be very important. A number of strategies may be required since one method alone (e.g. email) clearly does not work for all staff (Greenhalgh, Robert et al. 2004).

Generation of ideas and strategy for change

Reflecting the top down approach to change which is commonplace in healthcare, staff highlighted that many changes have been implemented in acute settings without considering how that might affect staff. Linked to this, and a theme which reoccurred through this thesis, was the impact of occupational status on perceptions of barriers to change. The position that staff occupied within the organisational hierarchy influenced how staff responded to innovation. Ideas for innovation were generated by senior staff outside of the wards, and those in direct care positions were frequently not involved. This reflects procedural justice theory, which suggests that an inequitable stance to decision making, perhaps as the result of poor staff involvement, may shape perceptions of planned changes if staff feel such changes are unfair to them or do not meet the needs of their client group (Greenberg 1987). In principle, involving frontline staff in developing ideas for change may improve their relevance, and involving staff in strategies to deliver changes may enhance their feasibility (Ross and Naylor 2017, Taylor-Watt, Cruickshank et al. 2017). Both were, to some extent, undertaken as part of the DOORWAYS project, which provided an intervention and implementation process, and is described later.

Support and monitoring during change process

The support and monitoring domain was characterised by a lack of leadership input, which reduced staff confidence in changes. Negative staff attitudes in the team were not addressed, sometimes because more senior staff did not feel able to do this. Training and supervision were limited and staff described feeling under-valued. This may be linked to the top down process of change, since all ward level staff including managers and senior nursing staff were affected by decisions to make changes which were outside of their control. Many felt that there was no toolkit to help them support their teams to make changes. Many felt that supporting staff to deliver changes was secondary to the core business of patient care.

Given Schein (1996) argues that psychological safety can be accomplished through the provision of support structures such as training, time for reflection, supervision, mentoring and leadership, it is clear that more emphasis on these features of working life will be required if changes are to succeed. In complex acute ward settings, the provision of psychological safety may be extremely challenging for leaders, in addition to shift rotations, high patient turnover and psychiatric distress. In the face of pervasive service limitations, it is perhaps understandable that staff development is sometimes deprioritised. However, if promoting change is to become higher on the agenda, then more effective systems for maintaining quality staff support and development programmes will be required (Cleary 2004, Cleary, Horsfall et al. 2010, Ross and Naylor 2017).

Team dynamic during the change process

The qualitative data highlighted many challenges on acute wards, which test team cohesion. These include challenging patient behavior and violence, as well as psychiatric symptoms, which

may all be emotionally distressing to staff. There were accounts of inconsistent practice, where rules were made, broken and changed depending on which staff were present. In addition, there was evidence of relational difficulties between staff and between groups of staff. The qualitative data suggest that some training to develop better working alliances and teamwork/shared responsibility is overdue.

Resistance

Descriptions of resistance emerged across the qualitative data because of human interactions and the relationship between these interactions and the workplace, both at a ward level and more broadly. Several consistent themes, which characterised how both ward culture and climate shaped staff responses to innovation, emerged in the data.

As was also shown by Simpson, Hannigan et al. (2016), individual perspectives can be understood within the wider context of an organisation, (for example, at ward level, and also within the wider policy context). These data clearly highlight a negative impact of unaddressed barriers at the ward/organisational level that could not be controlled by individuals in direct care positions. Given resistance, being one aspect of the wider process of change (Lewin 1951, Schein 1996), would be expected if the organisational context is challenging, it is not surprising that individual level resistance was observed. Hence, individual level resistance may be indicative of system level problems, which in these data was observed by staff at the team level and organisational level.

According to Schein (1996), a number of emotional/psychological responses are present when resistance to change occurs amongst a workforce. These include anxiety and under confidence, strong beliefs that current work practices are already effective and a mis-alignment of personal accomplishment values with organisational innovation. In mental health wards these elements were visible in the data. In addition, staff described friction between colleagues, the power of one influential person's negativity, widespread demotivation and feelings of powerlessness given the unpredictable ward climate. In these data, resistance was both active, made explicit and clearly described; or passive, with latent themes such as demotivation, anxiety and powerlessness.

In addition, the depth of resistance was notable. Whilst Damschroder, Aron et al. (2009) describe resistance as an issue for the implementation process, in these data, staff described a more intractable, culture of resistance to change. This was both a reaction to perceived adversity as a result of changes, whilst immersed in a volatile ward climate; and from historical failures to improve these settings, and the perception that improvements are therefore likely to fail.

A staff generated strategy to support future change management initiatives, developed from the qualitative data, is presented below (figure 4.10). It is useful to note that many of the observed, practice barriers to implementing changes have superficially simple solutions, many of which are not new ideas. In terms of informing our understanding of how changes could be better managed

in the future, it may be that training key staff in quality improvement strategies may be useful (Jones and Woodhead 2015),

However, a key insight provided by these qualitative findings is that underlying many psychological/emotional barriers result from complex interactions between ward practices and those who work there. These may result from the nature of the changes, which are imposed from the top down. These barriers also need to be addressed, but this may be much more difficult, requiring both expertise and time. Given the national structure of the NHS, which is administrated at government level and nationally, it is unlikely that top down change can be avoided. Opening channels of communication between the health services and the administrative bodies therefore seems important. Whether stakeholder involvement improves outcomes for staff, in terms of their perceptions of their working experience was not tested, but this would be useful in future research, as changes in perception may be based on more than involvement alone. This is discussed in more detail in chapter 9.

Figure 4.10: A staff generated strategy for change management on acute wards

BARRIERS		ACTIONS
COMMUNNICATION	Not enough team meetings/poor information dissemination/ no feedback.	Do not rely on email. Use communication diaries/posters. Involve admin staff to help manage the information flow. Have frequent team meetings. Provide positive feedback. Allocate key individuals to provide updates on progress. Allocate mentors to be responsible for informing mentees.
GENERATION OF IDEAS	Imposed, top down instruction.	*Staff led changes:* encourage staff to suggest improvements. Pay attention to differing staff views and foster discussion. *Trust led changes:* develop channels of communication between ward staff and senior Trust staff so that upcoming changes are negotiated, and the benefits are better understood ahead of implementation. Ensure adequate explanation of rationale for Trust led changes.
STRATEGY	Having no choice feels punitive/ changes are unfeasible / no plan/team conflict.	Develop protocols with clear outcomes. Address feasibility issues by encouraging staff generated adaptations to fit their environment and work. Capitalize on the interests of staff when developing changes. Be persistent. Allocate projects to key staff and mentors. Involve patients where possible.
SUPPORT & MONITORING	Poor leadership/insufficient training/ lack of supervision/ongoing resistance/low motivation/ poor staff performance.	Encourage key individuals to act as change agents for their allocated projects. Develop simple, tailored checklists for monitoring progress, which change agents will manage. Audit checklists. Consider how psychological safety can be provided for staff to develop in roles as change agents. Encourage service user involvement and feedback on ward routines. Use supervision to explore areas of resistance and actively discuss staff performance. Highlight positive developments. Ask staff to offer suggestions on what will motivate or incentivize them (identify areas for skills development). Allow time for supervision.
TEAM DYNAMIC	Unfair task allocation/strong voices/development of sub groups.	Identify how key tasks for innovation are linked to staff development. Map tasks against appraisal criteria to provide a framework/rationale for allocation. Develop a map which identifies how and where staff make a contribution. Encourage group work. Promote a united approach.
RESISTANCE	Environment (risk management)/work pressures (staffing, work volume, poor task management)/patients resist/ resistant team culture.	Allocate groups of staff to tasks where continuity is important. Encourage information sharing within these groups. Promote successes. Involve whole team in service development activities which are intended to deliver therapeutic benefits to service users (discuss at community meetings, ward round, care planning meetings).

4.7.2 **Applying Schein's (1996) theory**

Schein's (1996) theory states that change is a psychological process whereby staff are required to unlearn and relearn new work-related values. The first three stages of this process are of particular relevance to this research because the initial stages of change are captured by these data. They are: 1) disconfirmation 2) the induction of guilt or survival anxiety as linked to learning anxiety 3) the creation of psychological safety. The notion that change and disruption can affect how staff feel is also important. Emotional and psychological responses to change pervaded the qualitative data, which lend credence to Schein's viewpoint.

Disconfirmation, survival anxiety and learning anxiety

The first two stages are part of a linked, individual level process. Schein (1996) argued that disconfirmation evolves as a result of staff realising that current modes of working are not effective. Guilt emerges in acknowledgement of the need for improvements, which prompts the creation of survival anxiety. Survival anxiety is generated by peer pressure, which motivates an individual to change to keep up. In order that survival anxiety can develop, learning anxiety must first be overcome, whereby an individual must admit that they do not know what to do. This may relate to confidence.

These qualitative findings suggest that often, staff are not proceeding through these stages. Some staff did not acknowledge current work modes as being ineffective. Where evidence of learning anxiety can be observed it is not accompanied by an admission that more learning is required. Further, due to a negative culture, characterised by low motivation and morale, there are very few examples where staff portray survival anxiety. Rather, they adopt the more pervasive stance of *survival inertia*, not coping and describe negative perceptions of the wider ward climate.

Psychological safety

In cases where staff describe guilt as linked to poor work practices, psychological safety is not in place. Psychological safety is a broader, organisational theme which Schein (1996) argued is enabled as a result of effective leadership which allows staff to learn and apply the benefits of new changes, within a supportive environment where interactions are non-judgemental. As discussed in chapter 2, it may be challenging for those in leadership roles to create a situation which staff perceive as psychologically safe, given the volatile environment.

There is also qualitative evidence that psychological safety is restricted by leadership that is not focused around supporting innovation. Whilst those in more senior positions regard change more positively than their colleagues in direct care roles, it seems that the provision of the time and tools that staff require for change to be successful is lacking. Decisions that are made without considering the impact on those in direct care positions can affect both the ability of staff to deliver innovation and morale in relation to change. Despite these problems, these findings also suggest that staff do not necessarily view innovation itself as negative. If perceptions of climate can be improved and specific staff perceptions of barriers to change can be addressed this may lead to change which can be sustained.

Schein (1996) argued that resistance to change is generated from uncertainty and the need to re-establish the status quo. But, in acute in-patient psychiatry, resistance to change might be also be linked to the ethical obligation of staff to prioritise the care of service users, who on acute wards, are admitted in crisis. If there are high numbers of patients exhibiting symptoms of psychiatric distress (such hallucinations, delusions, confusion, violence and aggression and suicidality), it is unlikely that staff will cope with innovation, unless they are offered a high level of support.

4.8 The final 18 VOCALISE items: implementation climate, implementation readiness and change appraisal

Thematic analysis of the qualitative data, item reduction and development led to a staff generated measure of perceptions of barriers to change. VOCALISE was developed as an individual level, self-report tool to capture staff perceptions of large-scale changes to practice, concisely. VOCALISE is different from previous measures (such as OSC, ORC, BARRIERS, EPBAS) because it combines aspects of the organisational, social, emotional and psychological context with staff perceptions of barriers to change, rather than treating each construct in isolation.

It is noteworthy that whilst stakeholder involvement yielded novel concepts, the items also accessed known organisational constructs because VOCALISE taps implementation climate, implementation readiness and change appraisal. The constructs of implementation readiness and change appraisals may be assessed ahead of planned changes, and negative responses may impact implementation success. The utility of measuring implementation climate during changes is to provide insights into an organisation's systems to support changes.

4.8.1 Implementation Climate (innovation is rewarded, supported and expected by the organisation)

Implementation climate, a construct which was developed by Klein & Sorra (1996) refers to features that can be provided by an organisation to facilitate change and to ensure that innovation is rewarded, supported and expected. They suggested that the features of implementation climate should not be value based and should comprise the shared perceptions of the workforce.

In the VOCALISE measure, the following descriptive items capture implementation climate:

1. When it comes to change, information is not circulated effectively on my ward.
17. When some staff stop engaging with planned changes resistance spreads through my whole team.
18. Changes are audited to increase their consistent delivery on my ward.
22. Inadequate staffing prevents changes being successful on my ward.
23. Poor leadership prevents changes happening on my ward.

4.8.2 **Change appraisal (cognitive and affective evaluations of change)**

Change appraisal was developed by drawing on the theory of stress and coping by (Lazarus and Folkman 1984) in which the central theme of appraisal is defined by the amount of stress perceived by the appraiser, in this case, as a result of an upcoming organisational change. In their study, during which the stress associated with change is explored, Martin, Jones et al. (2005) showed that psychological climate affects how employees appraise change. Both change appraisal and psychological climate influenced how staff adjusted to new changes, so that more positive perceptions of climate led to better appraisals of change and enhanced job satisfaction. Their study measured change appraisal using three constructs: change stress, change self-efficacy and change control, using items that had previously been tested for reliability (Terry, Callan et al. 1996).

The following VOCALISE items allow an appraisal of barriers to change as perceived by the completer.

2. I feel confident when delivering new changes.
5. I'm too busy to keep up to date with information about the changes that are happening on my ward.
9. I feel disheartened when others do not want to get involved in changes.
10. I think that managing risk is more important than delivering new changes.
12. Changes just increase my workload and make my life harder.
13. It is not clear how all changes that we are asked to make will really benefit my ward.
14. My teammates think that there is no point trying to implement some changes because they won't work.
15. I find it de-motivating when new changes do not take patients' wishes into account.
16. I think that some staff would rather let others take the lead in making changes.
18. I do not really understand how to deliver some of the changes that are suggested by the management.

4.8.3 **Implementation Readiness (organisational receptivity to change)**

Implementation readiness has been described as tapping an organisation's receptivity when adopting change as well as how readily staff can access resources, information and knowledge (Greenhalgh, Robert et al. 2004, Damschroder, Aron et al. 2009). Weiner (2009) has developed this theory to include two components of implementation readiness: change commitment, or the shared resolve of the workforce to implement change; and change efficacy, or shared belief in their collective ability to perform implementation. The following VOCALISE items capture perceptions of barriers to change ahead of planned changes:

3. My whole team is regularly consulted about new ideas for ward practices.
6. We can easily fit new changes in with our usual ward practices.
21. I always challenge team members who are avoiding delivering new changes.

In measuring both implementation climate and implementation readiness, Weiner (2009) and Weiner, Belden et al, 2011) argue in favour of descriptive, rather than evaluative items which

focus on the organisation's implementation practices and policies. The aim through this approach is to improve within group agreement by producing a score that represents the climate of the unit under study, since policies to promote change are generally designed and delivered at this level (Weiner, Belden et al. 2011).

As shown above, the participatory method for VOCALISE yielded items that were both descriptive and evaluative. This suggests that both are important in allowing staff to express cognitive and affective responses to change. The nature and scope of the items generated by the participatory method also appears to cross a broad content domain, which has features of implementation climate, implementation readiness and change appraisal. Whilst, the item content appears an accurate reflection of the qualitative findings, it will be important to test whether the measure has good psychometric properties, for use in the field. It will therefore be subjected to a number of tests, which are outlined in the next chapter.

Chapter 5 : Exploring the psychometric properties of the new VOCALISE measure

5.1 Introduction

Many of the current measures of change and implementation have poor psychometric properties (Carlson and Plonczynski 2008, Kajermo, Bostrom et al. 2010, Shea, Jacobs et al. 2014). Clearly it is important to evaluate the psychometric properties of a new measure to provide some certainty that they capture information as intended, and with consistency. If these criteria can be satisfied then interpretation will be clearer and it is more likely that study findings will be replicated and that decisions can be taken on the basis of this evidence with confidence (Fitzpatrick, Davey et al. 1998).

As VOCALISE was intended for use in a clinical trial, its psychometric properties were investigated to ensure that it would be fit for purpose. This chapter describes the results of item refinement and psychometric testing, according to several Health Technology Assessment criteria including feasibility, reliability, interpretability, precision, acceptability, validity and appropriateness (Fitzpatrick, Davey et al. 1998).

5.2 Aims

The overall aim of this chapter was to investigate the psychometric proprieties of the VOCALISE measure. This was achieved by conducting six studies (phases four through to nine), which are a continuation of the measure development process that began in chapter 4 (phases one to three). As the number of items included in VOCALISE was reduced as a result of some psychometric tests, some steps were repeated. The aims were:

- To explore whether ward level aggregation was appropriate for VOCALISE
- To explore whether staff considered that using VOCALISE would be feasible (phase four). This also included an assessment of precision.
- To examine the test retest reliability and internal consistency of VOCALISE (phase five)
- To conduct a factor analysis to consider the interpretability of the measure (phase six)
- To explore the acceptability of the measure (phase seven)
- To assess convergent validity (phase eight)
- To re-assess the internal consistency of the reduced measure and to examine the test retest reliability of the subscales (phase nine)

The groups of staff who participated and the methods for these psychometric tests are described in detail in chapter 3. After a brief discussion of the suitability of ward level aggregation for VOCALISE, this chapter presents first a description of the characteristics of the participants involved in each test, and then the results of the test.

5.3 Exploring ward level aggregation

The optimal unit of aggregation for measures of organisational climate has been much debated in the literature (Klein and Sorra 1996, Cooke 2000, Weiner, Belden et al. 2011, Ehrhart, Aarons et al. 2014, Ehrhart, Torres et al. 2016). In healthcare, aggregation might be possible at the level of the organisation (e.g. Trust level) or at a sub-level of the organisation (e.g. ward level). Aggregation may be influenced by how the items in the measure are phrased, or by the outcomes of interest. Items which reference the individual rather than the organisation cannot be appropriately grouped at the organisational level. Further, researchers are likely to anticipate different outcomes from measures that take an organisational perspective than those which take the perspective of the individual. For example, understanding how organisational intention (policies) influence whether changes are incorporated would require a different level of focus to research exploring how individual perceptions influence the adoption of changes in practice. It will be useful to explore the most appropriate unit of aggregation at the measure development stage of VOCALISE to inform future use.

In this study, VOCALISE was developed as a measure of staff perceptions of barriers to change for use in a population of acute ward nursing staff. As individual staff are likely to be influenced by their colleagues in a ward environment, aggregation at the ward level was considered appropriate. To ensure that sufficient within group agreement existed between these individual level data by ward, an intra class correlation was computed using the VOCALISE total scores, to establish that 'between ward' variance was greater than 'within group' variance (Aarons and Sawitzky 2006b). If between ward variance was higher this would suggest that the data should be aggregated and analysed at the ward level. A one way analysis of variance assessing the effect of ward on the VOCALISE scores showed that the between group variance was greater than the within group variance, $F(7, 114) = 3.23$, $p= 0.004$; $N=122$). This indicated that multi-level models would be appropriate. In statistics, random effects models meet the assumption that differences in the data relate to subsets of the population (in this case that groups were located within wards).

5.4 Phase 4: Feasibility Study

5.4.1 Sample: group one

Forty staff from four different types of mental health inpatient setting were recruited into the feasibility study. Their characteristics are shown in table 5.1 (PICU refers to psychiatric intensive care unit).

Table 5.1: Demographic characteristics of feasibility study participants

Group One		N=40 (%)
Staff grade	**HCA**	13 (32.5)
	5	14 (35)
	6	9 (22.5)
	7	3 (7.5)
	Missing	1 (2.5)
Ward	**PICU/Forensic**	22 (55)
	Acute/National	18 (45)
Ethnic group	**White British/other**	16 (40)
	BME	24 (60)
Gender	**Male**	19 (47.5)
	Female	21 (52.5)
Age	**mean (Scott and**	44.44 (9.07)
	Range	28-64
	Missing	6

At the beginning of the psychometric testing process, the VOCALISE measure contained 23 items.

5.4.2 **Results**

Mode of administration

Staff felt that the brief, self-report format of VOCALISE was suitable for the clinical setting. VOCALISE was easy to complete (94% of staff agreed). VOCALISE was easy to understand (100% agreed).

Ease of explaining measure to study participants

Brief instructions for use were developed based on staff feedback in a process of expert validation (which was outlined in chapter 4, section 4.5). These were sufficient for participants to use the measure, which was self-report.

Scoring

As shown in table 4.2, negatively phrased items were reverse scored so that higher scores indicated a more negative perception of barriers to change.

Table 5.2: Reverse scored VOCALISE items

Reverse Scored	Items
Yes	1, 4, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 22, 23
No	2, 3, 6, 8, 19, 20, 21

The summary statistics (see table 5.3 below) demonstrated that the mean and median scores were scored positively, which suggested that some wording may need to be more neutral. The standard deviations showed score variations, which implies that the measure was successful in capturing different staff views. There were no clear missing data patterns.

Summary statistics

Table 5.3: Summary statistics and missing data patterns for each VOCALISE item

Items	Mean	Median	Standard Deviation	Missing
1	3.83	4.5	1.50	0
2	3.53	3	1.40	0
3	1.87	2	1.10	1
4	1.88	2	0.79	0
5	2.93	3	1.21	0
6	2	2	0.99	0
7	1.73	2	0.64	0
8	2	2	1.15	0
9	2.55	2	1.55	0
10	1.90	2	1.02	1
11	1.90	2	1.03	0
12	2.90	3	1.34	0
13	3.35	3	1.67	0
14	3.03	3	1.25	0
15	2.8	3	1.24	0
16	2.58	2	1.24	0
17	2.60	2	1.15	0
18	3.64	4	1.20	1
19	2.97	3	1.22	1
20	2.1	2	1.17	0
21	2.28	2	1.15	1
22	1.85	2	1.00	0
23	1.5	1	0.91	0

Wording

The richness of the qualitative data produced complex themes. However, maintaining the integrity of the reported data in the production of items that could be clearly understood in a self-report measure required further item refinement. The wording was examined and items with poor or loaded phrasing were rephrased using more neutral language.

Fifteen items were identified which were problematic either in terms of reverse scoring, ambiguous or poor wording, or complexity. These are identified in table 5.4.

Table 5.4: Feasibility study: identification of problematic items

VOCALISE problem items	Reverse Scoring	Poor Wording	Complex
3. I would feel more confident about changes if we sat down as a team and planned how to manage the problems that come up.			X
4. When the whole team is consulted about new ideas for ward practices it increases our motivation to try to implement them.			X
5. Staff tend to have different ideas about how to manage changes so making an organised plan is difficult.			X
6. New changes need to be interpreted to fit in with our ward practices in order to be effective.	X	X	
7. When we are working out how to deliver changes having flexibility within the shift to organise peoples' time is important.		X	
8. When the ward is acute and chaotic it is difficult to manage all the changes that we are expected to deliver.		X	
9. The culture of 'just doing enough to get through your shift', makes change less likely to happen.		X	
10. It can be disempowering when people do not want to get involved in changes.		X	
11. Maintaining safety takes priority over delivering changes on the ward.	X	X	
16. I get the impression that some staff are happy to 'pass the buck' and let others take the lead in making changes.		X	
17. Resistance can build in my team so that if some people stop engaging with planned changes it spreads through the whole team.			X
20. Change is more likely to be successful on my ward if a senior member of the team audits our progress.		X	
21. I think it is my responsibility to challenge team members who are avoiding delivering the changes that have been discussed and agreed.			X
22. Inadequate staffing is a major barrier to implementing changes successfully.		X	
23. It is important to have the support of all the senior members of the team if change is to be implemented.		X	

More personal pronouns were incorporated to actively engage staff with the measure, and the items were re-phrased.

Precision

A t-test was conducted to examine whether managers had more positive perceptions than direct care staff (Haar, Spell et al. 2005, Benn, Burnett et al. 2009). The mean VOCALISE score was 57.73 (sd: 10.81; N=40). One participant had not recorded their occupational status, so there were N=39 included in this test. Despite no significant difference between scores ($t(37)=1.07$; $p=0.29$), managers were more positive than in the direct care staff group (managers': mean=55.0; direct care staff: mean=59.0).

Since there is no difference in the nature of the occupational roles that nursing staff occupy when comparing between ward settings, this suggests that the environment may play a role in shaping perceptions as the sample were from four different types of setting. This will be further investigated in section 7.2. (Criterion Validity and Precision), which examines whether the perceptions of managers and direct care staff differed in a sample with only acute ward staff.

At the end of the feasibility study, 23 items remained and 21 out of 23 were re-written. The items were then re-ordered so that similarly themed items were not located next to each other. The aim was to encourage staff to think carefully and separately about each item.

RELIABILITY 1

5.5 Phase 5: Test Retest Reliability Study

5.5.1 Sample

A sample of N=42 staff (from group two) were recruited into the test retest reliability study as shown in table 5.5. The number of fully completed responses at both time points was N=41.

Table 5.5: Demographic characteristics of test retest reliability study participants

Group Two		**N=42 (%)**
Staff grade	**HCA**	14 (33)
	5	15 (36)
	6	8 (19)
	7	5 (12)
Ward	**Acute inpatient**	17 (40)
	Forensic	25 (60)
Ethnic group	**White British/ Other**	15 (36)
	***BME**	26 (62)
	Missing	1 (2)
Gender	**Male**	20 (48)
	Female	22 (52)
Age	**mean (Scott and Pollock)**	39.5 (8.8)
	Range	24-61
	Missing	11 (15)

5.5.2 **Results**

Reproducibility: individual items

Individual items were examined between two time points to test score reproducibility, using Cohen's (1960) kappa. On the twenty-three item measure, individual item reliability ranged from 0.11 to 0.58. However, across all items, there was imbalance in both the horizontal and vertical marginal totals, which reduced the value of kappa and misrepresented the level of agreement. An assessment of the maximum possible kappa and the proportion of the maximum kappa (kappa max) actually attained was required to give a clearer picture of the true value of kappa for each item (Bruckner and Yoder 2006).

Taking this adjustment into consideration, three items showed substantial agreement (kappa max ranged from 0.61 to 0.71). These results indicated good reliability. Moderate agreement was shown in fourteen items (seven had kappa max ranging between 0.50 and 0.56 and seven had kappa max ranging between 0.41 and 0.49), which indicated adequate reliability (Landis and Koch 1977). These results are presented in table 5.6, below.

Table 5.6: VOCALISE individual item kappa coefficients

N=	Item	Max weighted	Kappa max
42	1	0.87	0.39
42	2	0.69	0.55
42	3	0.73	0.41
41	4	0.81	0.23
42	5	0.71	0.42
41	6	0.54	0.49
40	7	0.70	0.27
41	8	0.57	0.20
41	9	0.86	0.54
42	10	0.86	0.41
41	11	0.64	0.36
41	12	0.94	0.56
42	13	0.82	0.50
42	14	0.75	0.54
42	15	0.88	0.39
42	16	0.83	0.49
41	17	0.77	0.50
42	18	0.77	0.71
42	19	0.89	0.66
40	20	0.65	0.52
41	21	0.84	0.61
41	22	0.85	0.43
41	23	0.77	0.45

Six items (1, 4, 7, 8, 11 and 15) were considered unreliable, with a kappa max of 0.39 or below. However, as items 1 and 15 had a kappa max of 0.39, which was close to the recommended 0.41 cut off for acceptable reliability (Landis and Koch 1977), they were retained. Items 4, 7, 8 and 11 were discarded. At this point, 19 items remained.

Internal Consistency

To assess whether the items included in VOCALISE produced staff scores which measured the same latent construct, the *internal consistency* of the 19 item VOCALISE measure was assessed using Cronbach's alpha (1951) (table 5.7). Pro-rated scores were used. As the scale was under development, the unstandardised solution was examined to aid interpretation (Nunally 1989).

Table 5.7: Internal consistency: alpha scores, item test and item rest correlations

N=	VOCALISE	Item test	Item rest	Average	Alpha
41	Q1	0.66	0.58	0.10	0.67
41	Q2	0.57	0.47	0.11	0.68
41	Q3	0.50	0.39	0.11	0.69
41	Q5	0.46	0.34	0.11	0.69
41	Q6	0.42	0.31	0.11	0.70
41	Q9	0.62	0.52	0.10	0.67
41	Q10	0.07	-0.06	0.13	0.73
40	Q12	0.38	0.26	0.12	0.70
41	Q13	0.47	0.36	0.11	0.69
41	Q14	0.63	0.54	0.10	0.67
41	Q15	0.35	0.23	0.12	0.70
41	Q16	0.46	0.35	0.11	0.69
40	Q17	0.41	0.28	0.11	0.70
41	Q18	0.76	0.69	0.10	0.66
41	Q19	-0.21	-0.33	0.14	0.75
40	Q20	0.24	0.12	0.12	0.71
41	Q21	0.19	0.06	0.13	0.72
41	Q22	0.31	0.18	0.12	0.71
41	Q23	0.35	0.23	0.12	0.70
Test scale				**0.11**	**0.71**

The *item-test correlation* which shows how highly correlated each item is with the overall scale, indicated that item 10 was very weakly correlated, and that item 19 was weakly and negatively correlated. The *item-rest correlation* which shows how correlated the item is with the scale computed from all items excluding the test item, indicated a weak and negative correlation with the overall scale in both items. These items read as follows:

10. I think that managing risk is more important than delivering new changes.
19. I regularly take on challenges outside my job description to ensure change happens.

As the alpha scores suggested that excluding items 10 and 19 would make the scale more reliable, item 19 was dropped, leaving an alpha of 0.75. However, item 10 was considered an important theme by the interview participants, mentioned by sixteen staff, sixty-one times. As the issue of managing risk in acute in-patient settings is a major component of the nursing role, this item was retained for further analyses. At this point, eighteen items remained (excluded items 4, 7, 8, 11 & 19).

Reproducibility: total scores

On the eighteen item measure, *concordance between the total scores* was good (Total score, rho = 0.76; p<0.001). However, a paired t-test showed that there was a significant difference between the two time points (t(36)=-2.10; p=0.04; mean difference =-2; 95% C.I:-3.93 to -0.07).

As the evidence suggests that occupational status can influence how staff perceive change (Haar, Spell et al. 2005, Benn, Burnett et al. 2009), it was possible that staff perceptions between time points were influenced by staff group. Test-retest reliability was further assessed according to staff group (managers and direct care staff) revealing that staff in direct care roles (N=26) were likely to change their scores (t(25)= -2.91; p=0.008; mean difference = -3.12; 95% C.I: -5.32 to -0.91). The scores of those in managerial roles were stable (t(10)=0.35; p=0.73; mean difference= 0.64; 95% C.I: -3.36 to 4.64; N=11). This may be linked to how staff work within their wards. Staff in direct care positions are generally in close contact with service users, whilst those in more senior roles are more removed. Direct care staff are likely to be affected by the fluctuating ward environment, both in terms of frequent staff and service user changes, and in terms of the atmosphere, which may be chaotic.

VALIDITY

5.6 Phase 6: Exploratory Factor Analysis and Interpretability

5.6.1 Sample

A sample of N=275 staff (group 3) were recruited to participate in the factor analysis as shown in table 5.8.

Table 5.8: Demographic characteristics of factor analysis participants

Group Three		**N=275 (%)**
Staff grade	**HCA**	73
	5	111
	6	46
	7	15
	Missing	30
Ethnic group	**White British/**	83
	***BME**	184
	Missing	8
Ward	**Acute Inpatient**	275
Gender	**Male**	166
	Female	107
	Missing	2
Age	**mean (Scott and Pollock)**	38.14(9.86)
	Range	19-67
	Missing	39

5.6.2 **Results**

Preliminary tests

The VOCALISE measure was subjected to principal axis factoring to explore the dimensionality of the measure. Three preliminary tests were required to ensure that the items were sufficiently correlated to substantiate a factor analysis. Correlations were assessed by computing pairwise correlation coefficients and Bartlett's test of sphericity. The Kaiser-Meyer-Olkin measure of sampling adequacy assessed whether the data could be grouped into smaller groups of factors.

Low to moderate correlations existed between the items. Bartlett's test of sphericity was significant ($p<0.001$), which suggested that the variables were not all correlated with each other, hence it would make sense to carry out a factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy was middling (0.81), which indicated that the data could be grouped into a smaller set of factors.

Principal axis factoring

The eighteen-item VOCALISE measure was fully completed by 240 participants. The scree plot showed three factors with an eigenvalue above 1 (see figure 5.1, below). These factors were retained because they lie before a steep drop in the curve (Cattell 1996). The first factor alone accounted for the majority of the variance (23%), and the first 3 factors together accounted for 43.50% of the variance.

These three factors were then subjected to both orthogonal rotation using Varimax and oblique rotation using Promax, which yielded similar results. As oblique rotation also allows for correlation between latent factors, and as this showed the clearest differentiation between factor loadings, and produced eigenvalues that were greater than one, (4.23, 1.99 and 1.61), this solution was preferred. The oblique solution is presented in a pattern matrix in table 5.9.

Figure 5.1: Scree plot of eigenvalues for VOCALISE

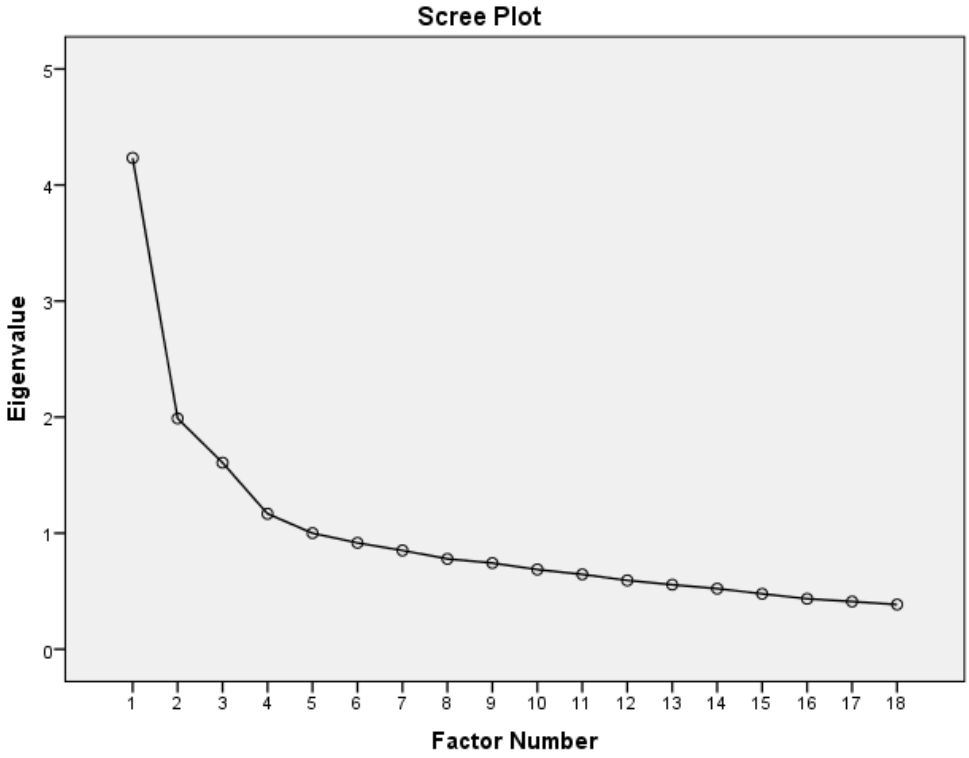


Table 5.9: Pattern matrix for VOCALISE

VOCALISE items	Factor Loadings		
	Factor 1	Factor 2	Factor 3
1. When it comes to change, information is not circulated effectively on my ward.		0.48	
2. I feel confident when delivering new changes.		0.57	
3. My whole team is regularly consulted about new ideas for ward practices.		0.55	
5. I'm too busy to keep up to date with information about the changes that are happening on my ward.	0.40		
6. We can easily fit new changes in with our usual ward practices.	0.43		
9. I feel disheartened when others do not want to get involved in changes.			0.57
10. I think that managing risk is more important than delivering new changes.	0.45		
12. Changes just increase my workload and make my life harder.	0.84		
13. It is not clear how all changes that we are asked to make will really benefit my ward.	0.45		
14. My teammates think that there is no point trying to implement some changes because they won't work.		0.44	
15. I find it de-motivating when new changes do not take patients' wishes into account.			0.30
16. I think that some staff would rather let others take the lead in making changes.			0.47
17. When some staff stop engaging with planned changes resistance spreads through my whole team.			0.57

18. I do not really understand how to deliver some of the changes that are suggested by the management.	0.40		
20. Changes are audited to increase their consistent delivery on my ward.		0.70	
21. I always challenge team members who are avoiding delivering new changes.		0.42	
22. Inadequate staffing prevents changes being successful on my ward.	0.47		
23. Poor leadership prevents changes happening on my ward.			0.43

The items were grouped together into subscales according to the results of the factor analysis.

Factor (subscale) 1

This factor links unsuccessful change to other ward factors that staff perceive as beyond their control. In the qualitative analyses (chapter 4), staff described how certain features of acute ward working gave rise to frustration but also to a sense of there being little that they could do to deliver changes; or *powerlessness*. Examples include attempting to sustain unfeasible innovations within the complex acute ward setting. Or, prioritising a calm ward atmosphere over the delivery of changes, where the former was seen as more beneficial, perhaps because it reduced staff anxieties about safety. Powerlessness may represent a form of tacit resistance, which is linked to poor work related autonomy, if staff defer change activity for reasons they perceive as outside their control.

Factor (subscale) 2

The underlying theme of this group of items appears to be *confidence*. It seems to relate to whether staff have confidence in the change management process and whether they have enough support and knowledge to effect successful change. This also reflects the qualitative data where staff reported that confidence was lessened by ineffective leadership.

Factor (subscale) 3

This factor is characterised by *demotivation*, which impacts on team morale, perhaps creating a barrier in group commitment to the process of change. In the qualitative data, demotivation was characterised by staff, almost as a consequence of the other barriers to change that affected them. Demotivation was described as embedded in the nursing culture and was expressed through overt resistance.

5.6.3 **Interpretability**

The interpretability of a measure is linked to how meaningfully the scores can be understood (Fitzpatrick, Davey et al. 1998). In terms of scale development, understanding how staff perceptions vary can be complex. If, in a sample, scores are generally high or low, then interpretation is clear. In this sample, scores were mainly clustered around the centre point, so some clarification of cut off points was of interest, in relation to both the total scores and the subscales.

The variation between positive and negative perceptions was assessed. The range of a positive perception was based on staff answering strongly agree or slightly agree. The range of a negative perception was based on staff answering strongly disagree or slightly disagree. If staff frequently scored slightly agree or slightly disagree on the Likert scale, they produced overall scores which were not clearly positive or negative, therefore the midpoint was identified. These ranges are described in tables 5.10 and 5.11 below.

Table 5.10: Interpretative ranges for VOCALISE total scores

Measure	*Positive range*	*Negative range*	*Midpoint*
VOCALISE	18-54	72-108	63

Table 5.11: Interpretative ranges for VOCALISE subscales

Subscale	*Positive range*	*Negative range*	*Midpoint*
Powerlessness	7 - 21	28 – 42	24
Confidence	6 – 18	24 – 36	21
De-motivation	5 – 15	20 – 30	17.5

5.7 Phase 7: Acceptability Study

5.7.1 Sample

A sample of N=125 (from group 4) were recruited into the acceptability study as shown in table 5.12.

Table 5.12: Demographic characteristics of acceptability study participants

Group Four: DOORWAYS T0		**N=125** (%)
Staff grade	**HCA**	41 (33)
	5	57 (46)
	6	15 (12)
	7	9 (7)
	missing	3 (2)
Wards	**1**	19 (15)
	2	18 (14)
	3	16 (13)
	4	16 (13)
	5	15 (12)
	6	20 (16)
	7	13 (10)
	8	8 (6)
Ethnic group	**White British/**	33 (26)
	***BME**	89 (72)
	Missing	3 (2)
Gender	**Male**	78 (62)
	Female	46 (37)
Age	**mean (Scott and Pollock)**	39.72 (10.01)
	range	22-67
	missing	13 (10)

4.7.2. Results

Acceptability to Staff

Assessing user acceptability was important; given VOCALISE is a self-report measure for completion in a busy acute, in-patient setting. Participants returned 115 completed acceptability questions, which was a completion rate of 92%. Of these participants, 19 (16.5%) thought that the questionnaire was too long whilst 84 (73%) thought it was about right (12 missing answers); 23 (20%) enjoyed filling out the questionnaire, whilst 78 (67.8%) had neutral feelings and 4 (3.5%) disliked it (10 missing answers). Finally, whilst 8 staff (7%) found answering one or more of the questions upsetting, 107 (93%) did not.

The Flesch reading ease score for the measure was 62.4 % (the recommended score for standard documents is between 60 and 70%). The Flesch-Kincaid Grade Level score was 7.6 (the recommended score is between 7.0 and 8.0). These scores suggest that 13-year-old students would easily understand the written text.

Response Rates

The number of staff who participated in DOORWAYS from each ward was recorded to provide information on response rates. This allowed the percentages of uptake into the DOORWAYS study to be noted at each time point (table 5.13). All response rates were 60% or above.

Table 5.13: The percentages of participating staff on each ward

WARD	Time 0 (baseline)	Time 1 (six months)	Time 2 (12 months)
1	81%	100%	91%
2	76%	87%	86%
3	78%	62%	88%
4	82%	78%	47%
5	79%	68%	42%
6	67%	90%	80%
7	69%	88%	71%
8	76%	80%	60%

Time to complete

Participants generally took around fifteen minutes to complete the questionnaire.

5.8 Phase 8: Convergent Validity, Precision and Criterion Validity

5.8.1 Convergent Validity

The constructs measured by VOTE (staff perceptions of the ward climate) and VOCALISE (perceptions of barriers to change) were expected to be linked, denoting convergent validity. Convergent validity between VOTE and VOCALISE was likely because acute inpatient settings have features, which may contribute a level of volatility and increase stress in staff. These include service user aggression, reliance on temporary staff and bed pressure. It is plausible that staff might consider factors such as these as barriers to change, even if they are not specifically linked to change. The extent to which this was true was tested using Pearson's correlations to evaluate both the total scores and the subscales.

Total scores

The following hypothesis was tested:

- If staff have positive perceptions of barriers to change (VOCALISE) then they will also have positive perceptions of ward climate (VOTE).

The results showed a positive correlation between VOCALISE and VOTE scores, of 0.73; p= <0.01, showing convergent validity.

Subscales

The factor analysis revealed that VOTE has three subscales 1) work intensity, 2) job satisfaction and 3) interaction anxiety. As was seen with the total score, moderate correlations were expected with the VOCALISE subscales. These correlations are shown in table 5.14 (N=125), which were all moderate to strong, positive and statistically significant, indicating convergent validity.

Table 5.14: Correlations between VOTE and VOCALISE subscales

		VOCALISE subscales		
		'Powerlessness'	'Confidence'	'De-motivation'
VOTE subscales	'Workload Intensity'	0.58 (<p=0.001)	0.37 (<p=0.001)	0.36 (<p=0.001)
	'Job Satisfaction'	0.43 (<p=0.001)	0.65 (<p=0.001)	0.39 (<p=0.001)
	'Interaction Anxiety'	0.35 (<p=0.001)	0.41 (<p=0.001)	0.34 (<p=0.001)

5.8.2 Criterion Validity and Precision

Criterion validity was assessed using random effects models and tested two known criteria: occupational status and job satisfaction. It was expected that:

- Staff perceptions of barriers to change are more positive in senior staff with higher organisational status, compared to those in direct care roles (Benn, Burnett et al. 2009).
- Staff with positive perceptions of barriers to change will also have high levels of job satisfaction (Wanberg and Banas 2000). The two groups were staff with positive perceptions of job satisfaction and staff with negative perceptions of job satisfaction.

Given direct care staff had more negative perceptions of barriers to change in the feasibility study, this larger sample was tested to replicate this finding to provide more information on measure precision. In total, eight random effects models were built, as shown below.

Models to test criterion validity

Table 5.15: Total scores

REM Model	**Independent Variables**	**Dependent Variables**
5.1	Occupational Status (Senior staff/ direct care staff	VOCALISE
5.2	IWS (High job satisfaction/low job satisfaction)	VOCALISE

Table 5.16: Subscales

REM Model	Independent Variables	Dependent Variables
5.3	Occupational Status (Senior staff/ direct care staff	VOCALISE: Confidence
5.4	Occupational Status (Senior staff/ direct care staff	VOCALISE: Powerlessness
5.5	Occupational Status (Senior staff/ direct care staff	VOCALISE: Demotivation
5.6	IWS (High job satisfaction/low job satisfaction)	VOCALISE: Confidence
5.7	IWS (High job satisfaction/low job satisfaction)	VOCALISE: Powerlessness
5.8	IWS (High job satisfaction/low job satisfaction)	VOCALISE: Demotivation

Total scores

To provide a benchmark for comparisons, the mean VOCALISE score was computed which was 62.24 (sd = 11.47; range 38 to 93; N=125). For all measures high scores imply negative perceptions.

Model 5.1: Occupational status predicted staff perceptions of barriers to change (Coef: -5.49, S.E: 2.47, p=0.026; 95%C.I: -10.32 to -0.66, N=119, 8 wards). The overall model was significant ($\chi2(1) = 4.96$; p=0.03) and occupational status accounted for 3% of the variance in the VOCALISE variable. Post hoc analyses showed that those in the senior staff group had a predicted mean VOCALISE score of 57.63, compared to a predicted mean VOCALISE score of 63.11 for direct care staff. This suggests that the senior staff group were more positive, and demonstrates precision.

Model 5.2: Poor work satisfaction predicted negative perceptions of barriers to change also had (Coef: 10.97, S.E: 1.86, p=0.001; 95%C.I: 7.33 to 14.60, N=114, 8 wards). The model was significant ($\chi2(1) = 34.88$; p<0.001) and the IWS variable accounted for 26% of the variance in the VOCALISE variable. The predicted mean VOCALISE score in the high job satisfaction group was 56.78, and the predicted mean score in low job satisfaction group was 67.74.

Subscales

Table 5.17: The impact of occupational status on VOCALISE subscales (Powerlessness, Confidence, and Demotivation)

Model (N=)	Whole model statistics	β	p	95% C.I.	Predicted mean	
					Direct care	Senior staff
5.3 (N=114)	***(χ2(1)= 9.97; p<0.002)***	***-3.02***	***0.002***	***-4.90 to -1.15***	***17.85***	***14.82***
5.4 (N=117)	***(χ2(1)= 5.59; p<0.02)***	***-2.85***	***0.02***	***-5.22 to 0.49***	***24.51***	***21.65***
5.5 (N=114)	(χ2(1)= 0.79; p=0.37).	0.88	0.37	1.06 to 2.83	21.69	20.80

Table 5.18: The impact of work satisfaction on VOCALISE subscales (Powerlessness, Confidence, and Demotivation)

Model (N=)	Whole model statistics	β	p	95% C.I.	Predicted mean perceptions	
					+ve	-ve
5.6 (N=110)	***(χ2(1)= 10.53;p<0.001)***	***2.68***	***0.001***	***1.06 to 4.29***	***18.44***	***15.76***
5.7 (N=113)	***(χ2(1)= 20.88;p<0.001)***	***4.28***	***0.001***	***2.45 to 6.12***	***26.11***	***21.82***
5.8 (N=110)	***(χ2(1)= 24.79;p<0.001)***	***3.63***	***0.001***	***2.20 to 5.05***	***23.01***	***19.38***

As above, there were eight wards in every model. As shown in tables 5.17 and 5.18, all models were significant except for model 5.5.

RELIABILITY 2

5.9 Phase 9: Internal Consistency

In the second phase of reliability assessments, the subscales and overall scale were tested, again using the unstandardised Cronbach's alpha (1951) to ensure adequate internal consistency. For this analysis only fully completed assessments were included. The overall alpha was 0.79 indicating fair reliability as shown in table 5.19. As shown in tables 5.20-5.22, the VOCALISE: Powerlessness subscale had an alpha of 0.73, which indicated fair reliability, and the VOCALISE: Confidence' and VOCALISE: Demotivation subscales had alpha of 0.66 and 0.59 which indicated unacceptable reliability (Cichetti and Sparrow 1990).

Table 5.19: Large sample internal consistency of the whole measure

VOCALISE	N=	Item test	Item rest	Alpha
Q1	240	0.52	0.42	0.78
Q2	240	0.47	0.39	0.78
Q3	240	0.55	0.46	0.78
Q5	240	0.51	0.41	0.78
Q6	240	0.49	0.40	0.78
Q9	240	0.23	0.12	0.80
Q10	240	0.36	0.25	0.79
Q12	240	0.53	0.43	0.78
Q13	240	0.56	0.47	0.78
Q14	240	0.55	0.46	0.78
Q15	240	0.34	0.24	0.79
Q16	240	0.52	0.43	0.78
Q17	240	0.48	0.38	0.78
Q18	240	0.71	0.64	0.76
Q20	240	0.43	0.33	0.78
Q21	240	0.20	0.09	0.80
Q22	240	0.45	0.34	0.78
Q23	240	0.52	0.40	0.78
Test scale				**0.79**

Table 5.20: Subscale 1: Powerlessness

VOCALISE	N=	Item test	Item rest	Alpha
Q5	262	0.62	0.44	0.70
Q6	262	0.60	0.44	0.70
Q10	262	0.52	0.32	0.73
Q12	262	0.72	0.58	0.67
Q13	262	0.66	0.49	0.69
Q18	262	0.68	0.52	0.68
Q22	262	0.54	0.35	0.73
Test scale				**0.73**

Table 5.21: Subscale 2: Confidence

VOCALISE	N=	Item test	Item rest	Alpha
Q1	255	0.60	0.36	0.63
Q2	255	0.65	0.48	0.59
Q3	255	0.67	0.45	0.59
Q14	255	0.58	0.35	0.63
Q20	255	0.65	0.46	0.59
Q21	255	0.49	0.25	0.66
Test scale				**0.66**

Table 5.22: Subscale 3: Demotivation

VOCALISE	N=	Item test	Item rest	Alpha
Q9	261	0.62	0.39	0.52
Q15	261	0.53	0.26	0.58
Q16	261	0.64	0.41	0.51
Q17	261	0.68	0.45	0.48
Q23	261	0.63	0.28	0.59
Test scale				**0.59**

5.9.1 **Test retest reliability**

Using data from group 2, test retest reliability was examined on the subscales of VOCALISE according to Lin's (1989) concordance coefficient.

- Factor 1 (n=39), Powerlessness, showed acceptable concordance (rho = 0.61; 95% CI 0.41 to 0.80).
- Factor 2 (n=40), Confidence, showed poor concordance (rho = 0.53; CI 0.31 to 0.74).
- Factor 3 (n=39), Demotivation showed poor concordance (rho = 0.45; CI = 0.21 to 0.70).

Paired t-tests showed that there was no significant difference between the two time points for either the Confidence (t(39)=-0.91; p=0.37; mean difference =-0.5; 95% C.I-1.61 to 0.61; N=40), or the Demotivation subscales (t(38)=-0.97; p=0.34; mean difference =-0.62; 95% C.I-1.90 to 0.67, N=39). There was a significant difference between the two time points of the Powerlessness subscale (t(38)=-2.58; p=0.01; mean difference =-1.38; 95% C.I:-2.47 to -0.30, N=39).

This was investigated further to clarify whether there was an effect relating to staff characteristics. A paired t-test showed that in the direct care group, staff were likely to change their scores over

time (t(26)=-2.50; p=0.02; mean difference =-1.62; 95% C.I- -2.97 to -0.29, N=27), whereas those in the managerial group were not (t(11)=-0.86; p=0.41; mean difference =-0.83; 95% C.I: -2.96 to 1.30; N=12).

5.10 Summary

This chapter outlines the results of the psychometric evaluation used to test a novel measure of staff perceptions of barriers to change (VOCALISE). Overall, the psychometric properties of the whole measure were promising. The reliability of the subscales was more questionable. The implications of this will be discussed in the next chapter, both in the context of the ward environment and for the longitudinal study, which will be described later.

The main findings of this chapter are overall, that the VOCALISE measure has good psychometric properties, taking into account the results that used the total score. In terms of reliability, the internal consistency of the whole measure was fair and test retest reliability was acceptable, although it seems that direct care staff have different experiences at work than more senior colleagues. In terms of validity, VOCALISE possessed a three-factor structure and had convergent validity with staff perceptions of ward climate. According to the criteria of work satisfaction and occupational status, VOCALISE behaved as expected, since staff with more positive perceptions also occupied a more senior position at work, and had greater work satisfaction. The psychometric properties of the subscales are less promising and this will be discussed after a summary of these results.

5.10.1 **Feasibility and acceptability studies**

- VOCALISE was reported to be easy to complete by 94% of staff.
- VOCALISE was reported to be easy to understand by 100% of staff.
- VOCALISE had good acceptability

5.10.2 **Reliability 1**

- VOCALISE showed acceptable agreement, according to Cohen's (1960) kappa.
- Lin's (1989) concordance estimate showed that the total score for the entire scale had good test retest concordance.
- Across the whole test retest sample, the paired t-test showed that staff views became significantly more negative over time, suggesting poor reliability.

5.10.3 **Validity**

VOCALISE was able to demonstrate construct validity and the items did cohere into a factor structure.

- Factor one was characterised by a sense of powerlessness.
- Factor two characterised confidence in how the process of change is managed.
- Factor three described demotivation around change.

There were strong associations between the total scores and strong to moderate associations between the subscales, indicating convergent validity. However, it is worth noting that the correlations between VOTE and VOCALISE were lower for the subscales than they were for the total scores which adds to the picture that the subscales were psychometrically inferior to the total score.

Criterion validity was demonstrated because:

- Staff with negative perceptions of barriers to change held more junior positions, and had poorer work satisfaction.
- Staff in senior roles were significantly more positive about planned changes than their direct care colleagues.

5.10.4 **Reliability 2**

- The *internal consistency* of the final measure was fair.
- The internal consistency of the powerless subscale, which included the most items, was fair.
- The internal consistency of the confidence' and demotivation subscales was inadequate.

- The *test retest reliability* of the subscales showed that the powerless subscale had acceptable concordance, the confidence and demotivation subscales had poor concordance according to Lin's concordance coefficient.
- The scores on both the confidence and the demotivation subscale were stable over time.
- There was a significant difference between the two time points of the powerlessness subscale.

5.11 Discussion: The psychometric properties of VOCALISE

Were feasibility and acceptability enhanced?

The feasibility study was helpful in illuminating problem items and it was clear that working directly with staff participants to complete the measure was successful since a large majority found VOCALISE easy to complete and understand. The results of the acceptability study were good as VOCALISE had high completion rates on most wards and was completed quickly by most staff.

Was the measure relevant, with good content and face validity?

Alternative arguments have been presented about qualitative data being prone to subjectivity and bias. VOCALISE was developed by a researcher from the same professional group as the participants (i.e. mental health nurses), which might increase content bias. However, Fontana and Prokos (2007) have suggested that when dealing with a research topic where interviewer interviewee relations require trust to promote more productive disclosure, this style of data collection is beneficial because it allows a culturally appropriate interaction. During the development of VOCALISE, a shared knowledge of the ward setting ensured that individual experiences were not isolated from other social processes, but rather, were context dependent.

This is an important distinction for the measurement of perceptions of barriers to change, as compared to previous measures of change. This is because nursing staff perceptions are likely to be linked to working life in acute ward settings, and interactions with other team members including service users.

Steps were taken during measure development to reduce bias through discussion with the supervisory team and an inter-rater reliability exercise. A ranking exercise was also undertaken to ensure face validity by checking whether the content of the items developed through interviews, did reflect the views of the majority. The results of this exercise showed that the participatory method was reflective of the majority view. Limited staffing, poor leadership, high workload, an unstable ward climate and a negative team culture were cited as barriers, both qualitatively and at baseline.

Reliability 1

In tests of reliability according to Cohen's (1960) kappa, the existence of low individual item kappa coefficients highlighted a tension that exists between the participatory model used in measure development and the process of psychometric testing. Although some items were important to staff, they were not stable over time and were removed. Items were only retained if they were very important to staff and also relatively stable in other contexts, including forensic settings and psychiatric intensive care. The issue of ward instability was raised by participants during the expert validation stage when participants observed that daily changes to staff and service users was likely to prompt some shift in score for those in direct contact with the ward milieu.

As shown in chapter 5, Lin's (1989) concordance estimate showed that the total score for the entire scale had good test retest concordance. Across the whole test retest sample, the paired t-test showed that staff views became significantly more negative over time, suggesting poor reliability. However, this was explained in the context of occupational status. Those in direct care positions were more likely to have poor score reproducibility than those in senior staff positions, because they are in direct contact with a changeable ward environment (chapter 5, section 5.5.2). Senior staff, who are more removed from the practical delivery of change, were less affected by the ward environment.

Criterion validity

Developing the theme that occupational status was important in how staff interpret changes, the criterion validity study showed that staff with negative perceptions of barriers to change held more junior positions, and had poorer work satisfaction. Staff in senior roles were significantly more positive about planned changes than their direct care colleagues. Of the VOCALISE subscales, Confidence and Powerlessness were significantly associated with occupational status. Senior staff were more confident, and felt less powerless than direct care staff. There was also evidence of an impact in wider working experiences because all 3 subscales (Powerlessness, Confidence, and Demotivation) were significantly and negatively associated with work satisfaction. If staff felt

powerless, under confident and demotivated they also had negative perceptions of work satisfaction.

Factorial validity

VOCALISE demonstrated construct validity because the items did cohere into a factor structure. The *exploratory factor analysis* indicated three latent psychological dimensions, which first emerged in the qualitative data. In chapter 4, Powerlessness, Confidence and Demotivation were described as latent characterisations of staff perceptions of barriers to change. As they were not overtly expressed, they may usefully represent passive aspects of resistance, which might illuminate the culture towards innovation within the nursing workforce.

In factor one, the items describe the relationship between unsuccessful change and aspects of acute ward working that staff perceive as beyond their control. This was characterised by a sense of powerlessness. Factor two characterised confidence in how the process of change is managed. Factor three described demotivation towards change.

Although there are no specific studies examining the components of acute ward staff perceptions of barriers to change in mental health, one organisational study has examined whether the personal beliefs, self and team motivation or behaviour of nursing staff predict openness to change. Wanberg & Banas (2000), showed that poor resilience (a perceived lack of control over proposed changes, low levels of optimism and poor self-esteem) predicted negative views of change, whilst high levels of self-efficacy predicted more open attitudes to change. The VOCALISE measure develops these psychological dimensions, by tailoring them to mental health nursing staff. The Powerlessness subscale describes a perceived lack of control over proposed changes, given the ward climate. Resilience was to some extent tapped by the Confidence subscale and low motivation was represented in the Demotivation subscale.

Convergent validity

Convergent validity was evaluated by correlating staff perceptions of barriers to change (VOCALISE) with perceptions of ward climate (VOTE). There were strong associations between the total scores and strong to moderate associations between the subscales. There was a strong, positive correlation between VOTE and VOCALISE showing that staff perceptions of barriers to change are linked to how staff perceive ward climate.

Analyses of the relationships between the subscales of VOCALISE and VOTE showed a moderate correlation between VOTE: Workload intensity and VOCALISE: Powerlessness ($r=0.58$). This supports work by Martin et al (2005) which shows that how staff perceive stress in their environment is likely to be linked to how staff anticipate and respond to change. The association between VOTE: Workload intensity and VOCALISE: Powerlessness is in line with their model whereby a stressful ward climate leads to negative change appraisal. There was also a moderate association between VOTE: Job satisfaction and VOCALISE: Confidence ($r=0.65$). As Martin (2005) includes job satisfaction as an adjustment indicator for innovation, this may

suggest that the likely outcome, given these data, is that staff adjustment to change will be poor, unless ward climate accommodates innovation.

Reliability 2

The *internal consistency* of the final measure was fair. The internal consistency of the powerless subscale, which included the most items, was fair. The internal consistency of the VOCALISE Confidence and Demotivation subscales was inadequate but this may be a reflection of the small number of items in each subscale, as increasing the number of items in known to improve internal consistency (Nunally 1989). In addition, it may be useful to consider further the relationship between the scope of the measure and its internal consistency. It might be argued that in attempting to capture a measure with a broad topic domain, it is unlikely that a very high alpha will be achieved. Further, very high alphas may not be desirable if this implies that some items are not necessary, and at the preliminary stages of measure development alphas of between 0.5 and 0.6 have been considered acceptable by some authors (Nunally 1967, Streiner 2003).

The *test retest reliability* of the VOCALISE subscales was mixed. The Powerless subscale had acceptable concordance, whilst the Confidence and Demotivation subscales had poor concordance according to Lin's concordance coefficient. However, the scores on both the Confidence and the Demotivation subscale were stable over time, whereas there was a significant difference between the two time points of the Powerlessness subscale. As with the total scores, this was related to occupational status. Those in managerial roles had stable scores whilst those in direct care roles did not.

The process of psychometric testing revealed that scale reliability was satisfactory for manager's scores. However, direct care staff on acute mental health wards, who are likely to manage the practical delivery of change, had poor score reproducibility, both using the total score and the Powerlessness subscale. This may not be an issue with the reliability of the VOCALISE measure because as discussed these staff are immersed in the ward and may be more susceptible to front line stressors and the volatile ward atmosphere. Hence, it will be useful to examine the measure longitudinally to observe whether changes over time are captured, to further explore the utility of VOCALISE.

The items of the Powerless subscale describe workload, staffing and the feasibility of keeping up to date with changes and then implementing them, emphasise this point. These issues were felt by staff to be beyond their control. It may be that minimising these types of stressors in the ward environment could improve score reproducibility as well as promoting change, given that of the subscales; only Powerlessness was not stable over time. Demotivation and Confidence, being states over which some control may be exerted, may be more stable for this reason. Further, since there were fewer items in these subscales than in the Powerlessness subscale, there was less chance of variability and consequently these subscales may have appeared more stable.

Chapter 6 : Methods for exploring staff perceptions of barriers to change in acute mental health wards

6.1 Introduction

In stage three of this thesis, the new VOCALISE measure was used as part of a package of measures to explore the effects of an intervention to improve the therapeutic environment in acute mental health wards. The intervention was the implementation of new therapeutic activities. It represented a period of intensive change, which was delivered as part of a randomised controlled trial comparing the active intervention group to a standard care group. It was expected that the uncertainty that accompanied these changes, would have some detrimental impact on staff, given changes are known to be disruptive (Lewin 1951, Schein 1996). Data were collected at baseline, and 12 months later.

The overall goal was to develop a model of how innovation affects perceptions of barriers to change over time. However, given wards are complex environments, it was important to clarify first which features significantly affected perceptions of barriers to change at baseline (cross sectional study). These were then controlled in longitudinal models so that any significant impact as a result of the intervention was clearly visible. In addition, whether perceptions of barriers to change and ward climate affected outcomes such as work satisfaction and burnout was examined to explore why previous attempts to improve these settings have been difficult.

6.2 DOORWAYS: Trial design and context

The DOORWAYS trial was a stepped wedge, cluster randomized controlled trial which aimed to improve the therapeutic milieu in eight acute in-patient wards by introducing predominantly nurse led therapeutic interventions. At each randomisation point, two wards were assigned to the therapeutic intervention arm and those on the 'waiting list' provided a control. Data were collected pre-randomisation, so that randomised wards also acted as controls. This meant that at the T1 data collection point, wards 4 and 8 did not know that they would be receiving the intervention next. Each period of data collection was over (an approximate) thirty day, time period on each ward. The baseline data were collected in March and April 2009. Altogether, there were five randomisation points, which allowed all of the wards to receive the intervention during the course of the trial. This thesis is concerned with only two of these time periods; baseline (T0), when no wards had received intervention, and the 12 month follow-up, when 4 out of the eight wards had received the intervention (figure 6.1).

Figure 6.1: The Stepped Wedge Randomization Procedure for DOORWAYS

Ward	T0 (baseline)	T1 (6 months)	T2 (12 months)	T3 (18 months)	T4 (24 months)
3	Randomised	Intervention	Intervention	Intervention	Intervention
5	Randomised	Intervention	Intervention	Intervention	Intervention
4	Control	Randomised	Intervention	Intervention	Intervention
8	Control	Randomised	Intervention	Intervention	Intervention
1	Control	Control	Randomised	Intervention	Intervention
7	Control	Control	Randomised	Intervention	Intervention
2	Control	Control	Control	Randomised	Intervention
6	Control	Control	Control	Randomised	Intervention

As shown in figure 6.1, at baseline, two wards had been randomised and were awaiting training but no ward had received any intervention. These data are used in the cross sectional study. At 12 months, six out of eight of the included acute wards had been randomised into the trial. This meant that four wards had received training and ward staff were facilitating groups on the wards (two wards for up to 11 months and two for up to 5 months, approximately). Two wards were randomised and awaiting training and two were not yet randomised, providing four control wards.

6.2.1 **The intervention**

University-based researchers developed the DOORWAYS intervention externally from the Trust staff involved in its implementation. Senior Trust members approved DOORWAYS before additional staff were engaged. The project aims were participatory, with input from both frontline staff and service users, who were expected to benefit from improvements to the overall therapeutic atmosphere on the wards. In addition, many staff advanced their knowledge of relevant psychological therapies through training delivered by a psychologist. However, it is also acknowledged that the project was instituted using a top down approach. Therefore negative effects on staff perceptions were possible over the time period studied.

6.3 Training

Following a process of consultation with senior Trust staff, ward managers and some frontline nursing staff, two core-training activities were intended, which directly involved nursing staff (table 6.1):

Table 6.1: Core training activities for nursing staff

Evidence based group	Training requirement and implementation time
Communication skills: "Working Well Together".	0.5 day CBT based training session with 2 components: i) Therapeutic communication using CBT principles; ii) Understanding and avoiding aggression. No nursing staff led group was to run on the ward because of this training.
Social Cognition & Interaction Training (SCIT) - aimed to improve service users' understanding of social situations and minimise misunderstandings with others (Penn, Roberts et al. 2007).	Required 2, 1-hour training sessions. Post training, groups were delivered in 3 sessions (45 minutes) over 1 week, with the next 2 weeks off.

In addition, a Cognitive Remediation Therapy group (CIRCUITS) would be run by ward based occupational therapy staff. Wards were also able to choose additional therapeutic activities (table 6.2), based on their service requirements:

Table 6.2: Additional therapeutic activities

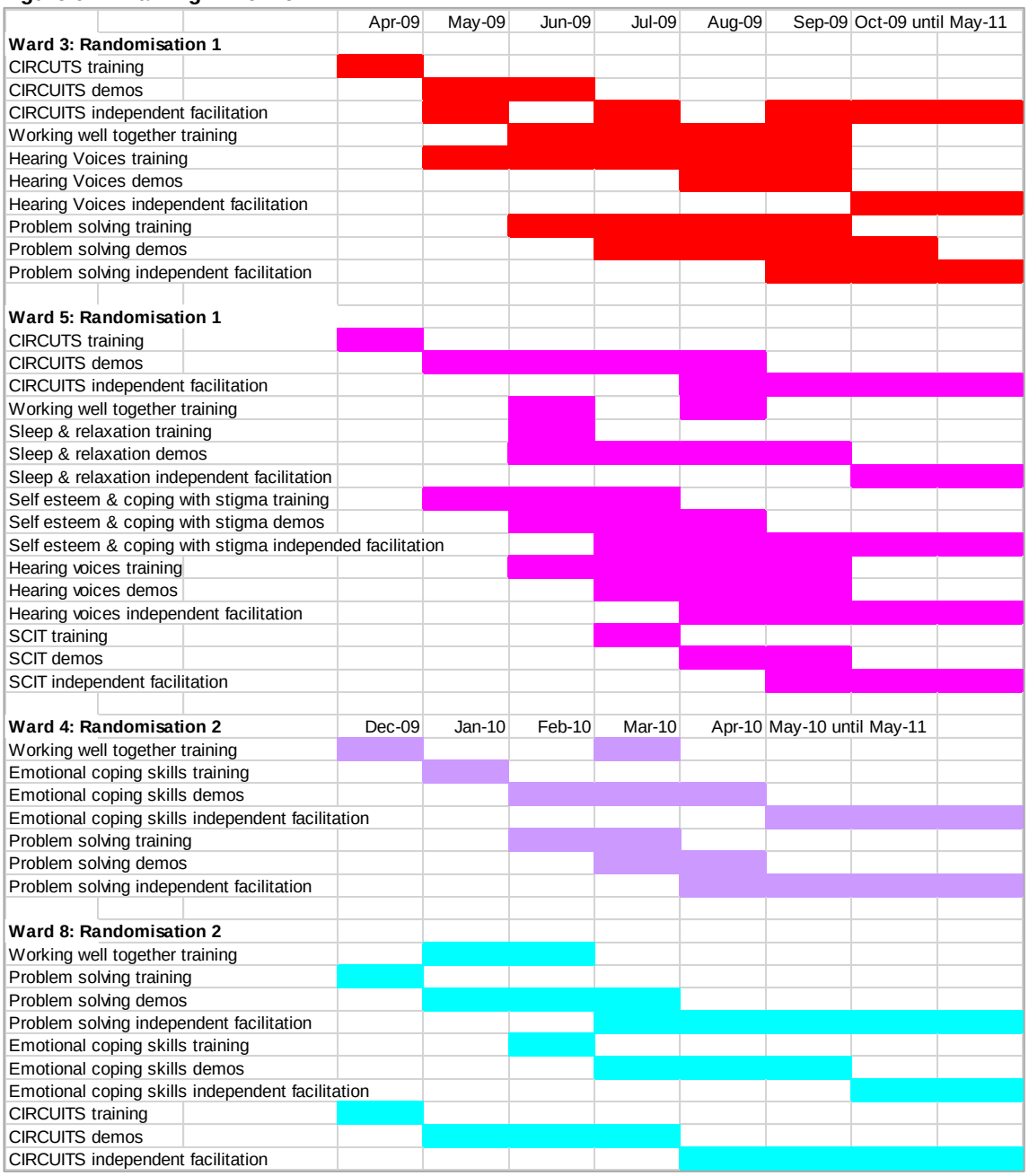
Evidence based group	Training requirement and implementation time
Hearing Voices Group: to reduce the distress associated with hearing voices. To teach new coping skills whilst improving self-esteem (Ruddle, Mason et al. 2011).	2, 1-hour training sessions. Post training, groups were delivered in 3 sessions (45 minutes) over 1 week, with the next 2 weeks off.
Self Esteem and Coping with Stigma: to reduce the stigma associated with mental health problems, including the negative self-evaluations which may maintain low self-esteem (Knight, Wykes et al. 2006).	2, 1-hour training sessions. Post training, groups were delivered in 3 sessions (45 minutes) over 1 week, with the next 2 weeks off.
Emotional Coping Skills: based on dialectical behavioural therapy. Aimed to teach skills to service users for coping with overwhelming negative emotions (common in those who self-harm) (Lineham 1997).	2, 1-hour training sessions. Post training, groups were delivered in 3 sessions (45 minutes) over 1 week, with the next 2 weeks off.
Relaxation Techniques: progressive muscle relaxation techniques and breathing exercises to service users in preparation for sleep (Knight, Wykes et al. 2006).	2, 1-hour training sessions. Post training, groups were delivered in 1 session (45 minutes) weekly.
Problem Solving Skills: structured methods for problem-solving. Involved identifying the problem, brain storming possible solutions, and selecting the best solution(s) (Grey 2015).	2, 1-hour training sessions. Post training, groups were delivered in 1 session (45 minutes) weekly.

A clinical psychologist offered training to key nursing staff in a number of groups and evidence base activities . Implementation followed a change management strategy adapted from 'Diffusion of Innovations' (Rogers 2003). The aim was to identify enthusiastic individuals as champions, which would motivate other members of the team to adopt the intervention. After six months the groups were expected to run regularly because a majority of staff had been trained and involved. After the training, there followed a process of establishing the groups on the wards, through demonstrations by the psychologist. The nursing staff were then asked to deliver the groups independently by the third month. Until the end of six months the psychologist was available for advice and ongoing support. By the twelfth month, all wards had received training in communication skills and the intervention groups were running as outlined in table 6.3 and as shown in figure 6.2.

Table 6.3: Training status at twelve months

Ward 3	Ward 4	Ward 5	Ward 8
Cognitive Remediation Therapy	Emotional Coping Skills	Cognitive Remediation Therapy	Cognitive Remediation Therapy
Social Cognition & Interaction Training	Problem Solving Skills	Problem Solving Skills	Problem Solving Skills
Hearing Voices		Hearing Voices	Hearing Voices
Relaxation Techniques			Emotional Coping Skills
Self Esteem & Coping with Stigma			

Figure 6.2: Training Timeline



Note: CIRCUITS=Cognitive Remediation; Therapy SCIT=Social Cognition & Interaction Training).

Table 6.4: Training attendance – number of ward staff at each training session

Randomisation (R)	**R 1**		**R 2**	
Ward	**5**	**3**	**8**	**4**
Working Well Together	7	11	9	4
SCIT	0	17	0	0
Emotional Coping Skills	0	0	5	10
Hearing Voices	11	26	5	0
Problem Solving	10	0	3	4
Self Esteem & Coping with Stigma	0	12	0	0
Relaxation Techniques	0	17	0	0
CIRCUITS (OT's only)	3	1	2	0
TOTAL SESSIONS PER WARD	**32**	**84**	**24**	**25**

As shown in table 6.4, training was implemented in six wards, with some variation in attendance. Of the two core training sessions, the working well together session was well attended. However, Social Cognition & Interaction Training was not popular with all wards and only two wards went ahead with it. The groups that were self-selected were well attended, overall. On ward 8, comparatively low numbers of staff attended the training. Ward 4 was a specialist, community inpatient service for women that employed less staff than a standard hospital ward. As the feedback from those who attended training was limited, this could not be included. There were no data provided about the groups by service users. As already discussed, the clinical psychologist delivered the training using a consistent approach, although there was variation in which groups the wards wished to implement (table 6.3). This implies that the wards had different experiences of change. However, qualitative data exploring the process of change in-depth were not be collected as DOORWAYS was a randomized controlled trial, and this may have been influenced the outcomes after the trial was underway. This will limit any detailed understanding of how different wards experienced DOORWAYS, in terms of team interactions, leadership, strategy, and monitoring/feedback. However, given these issues have been translated into items on the VOCALISE measure, any deterioration in total and subscale scores will provide some evidence that these issues are present. Other factors that influence how staff perceive barriers to change, such as ward climate, will be included in later analyses.

6.4 Sample

It was anticipated that at least 100 staff would be recruited at both baseline and T1, a proportion of which would be repeat participants. The characteristics of the baseline sample are described in chapter 7 (section 7.3). The repeated measures sample is described in chapter 8 (section 8.3.1).

6.4.1 **Inclusion criteria**

All permanently employed ward nursing staff were eligible to take part in this stage of the study, including staff from band seven (team leaders), band six (clinical charge nurses), band five (entry level qualified staff) and band three (health care assistants).

6.4.2 **Exclusion criteria**

As staff with limited exposure to the working practices of the wards were unlikely to have a well formed view of staff perceptions of barriers to change, those who had worked on their wards for less than 4 weeks were excluded. This included all temporary staff and student nurses.

6.5 Sample size calculations

6.5.1 **Correlations**

Since there are no studies which examine relationships between perceptions of barriers to change and ward variables the sample size was based on the need to detect a relevant correlation with a specified significance level and power (Lachin 1981). The sample size required to detect a correlation of 0.3 with 90% power using a two-sided test of the null hypothesis that the correlation is 0 and assuming a 5% significance level was N=113.

6.5.2 **T-tests**

As no information is available on the likely level of change, the following (conservative) power calculation for mean differences was based on the mean sores of the test (mean 1) and retest (mean 2) study. The *sampsi* command in Stata 11.2, was used to estimate that a sample size of 62 (31 in each group), would have 90% power to detect a difference in means of -2.83. This is the difference between a Group 1 mean of 79.36 and a Group 2 mean of 82.19, assuming the common standard deviation is 4.82 using a one-group t-test with a 0.05 two-sided significance level.

6.5.3 **Multi-level regression models**

To estimate the number of participants necessary for multi-level regression models I followed the general rule suggested by Green (1991) of ten cases per variable.

6.6 Recruitment and data collection

The method of recruitment followed the strategy outlined in chapter 3 with the following variations. At each data collection point, staff were provided with an information and consent sheet and were asked to consider participation. Staff were encouraged to ask questions about the project before signing their consent (Appendix B.4, p.241) to complete a pack of measures.

6.7 Data (entry, checking, cleaning)

Data entry, checking and cleaning followed the same process as outlined in chapter 3.

6.8 Measures

Table 6.5: Measures used at baseline and follow up

Cross sectional study	**Longitudinal study**
Staff demographics	*Staff demographics*
Length of employment	Occupational status
Occupational status	Age
Further education	
Ethnic group	
Gender	
Age	
Ward measures	*Ward measures*
Number of incidents (in the last 30 days)	Number of incidents (in the last 30 days)
Gender	Number of temporary staff (recorded over 7 days)
Number of service users under section (recorded over 7 days)	
Number of service users on close observations (recorded over 7 days)	
Number of temporary staff (recorded over 7 days)	
Number of service users on the ward over the 30 day period of data collection	

Staff perceptions measures	*Staff perceptions measures*
Views of Change and Limitations in Inpatient Settings (VOCALISE)	Views of Change and Limitations in Inpatient Settings (VOCALISE)
Views of the Therapeutic Environment (VOTE) (Laker, Rose et al. 2012)	Views of the Therapeutic Environment (VOTE) (Laker, Rose et al. 2012)
Index of Work Satisfaction (Stamps and Piedmonte 1986)	Index of Work Satisfaction (Stamps and Piedmonte 1986)
Maslach Burnout Inventory (MBI) (Maslach, Jackson et al. 1996)	Maslach Burnout Inventory (MBI) (Maslach, Jackson et al. 1996)

Some ward measures were completed over the 30 day data collection period but others were collected for the first seven days only as this was felt to be sufficient to provide a snapshot of ward activity. I collected data using all included measures. The staff perceptions measures (VOCALISE and VOTE) that were created for this research are presented in full in Appendix D (p.250).

6.9 Cross sectional study [T0]

The baseline data allowed an exploration of contextual staff and ward variables and their relationship to staff perceptions of barriers to change (and subscales powerlessness, confidence and demotivation). The aim of these investigations was to clarify which variables influenced staff perceptions of barriers to change, as part of a process of model building.

The literature suggests that occupational status might play a role in how staff perceive change, and that occupational seniority is generally linked with more positive perceptions of change (Haar, Spell et al. 2005, Benn, Burnett et al. 2009). Further, that younger staff regard change more positively (Vroom and Pahl 1971, Bantel and Jackson 1989), as do those with higher educational attainment (Aarons 2004). A wider range of demographic data was collected for DOORWAYS including occupational status, age, education, length of employment, ethnicity and gender, and therefore the influences of these variables on perceptions of barriers to change was explored.

In addition, there are potentially disruptive features of acute psychiatric ward working life such as violence, low staffing levels, patient turnover and patient characteristics, which might affect how staff view changes (Brennan, Flood et al. 2006, Knapp, McDaid et al. 2008, Bowers, Allan et al. 2009, Currid 2009, Van Daele, Van Audenhove et al. 2012). The influence of these ward characteristics was explored using both a measure of staff perceptions of ward climate and other ward climate indicators including: incidents, containment practices, service user gender, temporary staff, and number of patients on the ward.

Certain negative outcomes, such as increased burnout and decreased work satisfaction, which have been associated with working in a mental health ward are described in the literature (Ward and Cowman 2007, Seed, Torkelson et al. 2010, Johnson, Wood et al. 2011). If perceptions of barriers to change and ward climate are linked, then an impact of these perceptions on work satisfaction and burnout may also be expected.

6.9.1 Analysis strategy

All analyses were conducted using STATA 11.2. At baseline, preliminary assessments were conducted of the distribution of each continuous staff measure using box plots and confirmatory tests of the statistical significance of skewness and kurtosis (Appendix E.1, p.258).

The ward level variables were handled as two-level factor variables, if it was meaningful to do so, to allow post hoc comparison of marginal means (see below). Continuous variables (including staff perceptions measures) were converted to two-factor variables by dichotomising at the median.

Random effects models were built to examine the research hypotheses. Although individual perceptions were likely to vary, a shared ward culture was probable. Therefore, ward was added as a cluster variable in all random effects models because individuals on the same ward are unlikely to be independent. The outcome therefore takes account of between, and within group variation. A more detailed explanation of random effects models was presented in chapter 3.

Post estimation analyses were conducted using Stata command *margins* if results were significant to show how the groups in both the dependent and independent variables were related. *Margins* are predicted means based on the previously fit model. The approach post hoc depended on the nature of the independent variable. If the independent variable was categorical (e.g. gender), or already dichotomised at the median (e.g. age – see below) a predicted mean VOCALISE score was computed for each category. If the independent variable was continuous, the model was re-run with that variable split at the median, so that a predicted mean VOCALISE score could be computed for each category.

Statistical significance was defined as $p<0.05$. However, as these analyses were exploratory in nature, the decision to explore effects further was taken if the significance level was $p<0.09$. There were two main reasons for this. First, it was reasonable to take a liberal approach since VOCALISE is newly developed and the measured construct (perceptions of barriers to change) is not yet clearly defined. Second, the sample included only eight wards with relatively low numbers of cases per ward (Royall 1986). Significant estimates were explored post hoc by computing predicted mean VOCALISE scores in each category of the predictor variable.

6.9.2 Which staff demographic characteristics affected perceptions of barriers to change (model 7.1), powerlessness (model 7.2), confidence (model 7.3) and demotivation (model 7.4)?

Hypothesis: Occupational status, age, education, length of employment, ethnicity and gender will affect the total score of the perceptions of barriers to change.

Six demographic variables were entered as covariates in a random effects regression model, with ward as a cluster variable. All covariates (length of employment, occupational status, education, ethnicity, gender and age) were dichotomized into meaningful categories:

- length of employment (less than 41 months/more than 42 months)
- occupational status (manager/direct care staff)
- education (degree educated/no degree)
- ethnicity (White British/BME)
- gender (male/female)
- age (39 years and less/ 40 years plus)

In model 7.1, the dependent variable was staff perceptions of barriers to change (VOCALISE T0). In models 7.2, 7.3 and 7.4, the subscales of VOCALISE (powerlessness, confidence and demotivation) were examined, using the covariates which had significantly predicted the total score (i.e. perceptions of barriers to change). This was important because, as previously discussed, the subscales appear to describe facets of resistance, which may show different effects than the total score.

6.9.3 How did ward climate indicators (incidents, close observations, use of the Mental Health Act (2007), temporary staff, bed pressure) affect perceptions of barriers to change?

There are a number of factors that may contribute to an unstable ward climate, which may negatively affect how staff view innovation. Bowers, Hackney et al. (2007) have argued that many can be categorised into features of either conflict or containment. It may be useful to consider groupings of these features as, in reality, causes and effects may be linked. In this section ward climate indicators across four categories of incidents (conflict), containment, staffing and bed pressure were explored, which were expected to adversely affect staff perceptions of barriers to change.

The incidents measure predominantly represented aggressive, disruptive behaviour. The containment measures captured whether close observations were used, which involves nursing distressed service users in close proximity, and the number of service users detained under a section of the Mental Health Act (2007). These measures are often employed by nursing staff to reduce disturbance and to maintain safety on the ward. High levels of these measures may imply that the ward is therefore unsafe. Staffing levels were indicated by how many temporary staff were working on the wards. Bed pressure was assessed using a measure of the total number of service user participants admitted over the 30 day period of data collection. These ward level data were either captured over the first 7 days, or for the total 30-day period of data collection.

Did high numbers of incidents worsen perceptions of barriers to change (model 7.5)?

Hypothesis: Negative staff perceptions of barriers to change will be significantly associated with high numbers of incidents.

A random effects model was constructed with dichotomised variable: incidents (high/low numbers) as the predictor, controlling for any significant demographic variables. VOCALISE T0 was the dependent variable.

Did increased use of containment measures (close observations and detention under the Mental Health Act (2007) (model 7.6), worsen perceptions of barriers to change?
Hypothesis: High levels of close observations will negatively affect staff perceptions of barriers to change.
Hypothesis: Staff perceptions of barriers to change will be more negative on wards with higher numbers of patients detained under the Mental Health Act (2007).

Given these data were restricted; an issue which is also discussed in chapter 7, a t-test was conducted to compare staff views of barriers to change at two different types of service. One was a specialist women's service, where no patients were detained under the Mental Health Act (2007) and consequently no containment measures were used. The other was the standard acute in-patient service for women, where containment measures were routinely used. Controlling for any significant demographic variables and with VOCALISE T0 as the dependent variable a random effects model was constructed with the continuous variable, detained patients over 7 days, as the predictor.

Did bed pressure negatively affect perceptions of barriers to change (model 7.7)?
Hypothesis: Perceptions of barriers to change will be negatively associated with wards with high numbers of service users on the ward over 30 days.

A random effects model was constructed with a continuous variable, number of service users on the ward over 30 days, controlling for any significant demographic variables. VOCALISE T0 was the dependent variable.

Did high numbers of temporary staff influence perceptions of barriers to change (model 7.8)?
Hypothesis: On wards with high numbers of temporary staff, perceptions of barriers to change will be more negative.

A random effects model, clustering on ward, controlling for any significant demographic variables, with VOCALISE T0 as the dependent variable was computed to explore whether high numbers of temporary staff, a continuous variable, influenced perceptions of barriers to change.

How did significant ward climate indicators affect powerlessness, confidence and demotivation (models 7.9-7.11)?
Ward variables which significantly predicted perceptions of barriers to change (VOCALISE T0) were also explored as predictors of the subscales.

6.9.4 Did staff with negative perceptions of barriers to change and ward climate also have negative perceptions of work satisfaction burnout?

Potential negative effects of perceptions of barriers to change and ward climate on work satisfaction and burnout were tested, controlling for demographic and ward climate variables which were shown to have a significant effect in prior analyses. Background data contextualizing

the staff measures according to other studies were presented. Mean scores were described by ward.

All staff perceptions measures were dichotomized at the median:

- VOCALISE T0 (positive perceptions/negative perceptions of barriers to change)
- VOTE T0 (positive perceptions/negative perceptions of ward climate)
- IWS T0 (positive perceptions/negative perceptions of job satisfaction)
- MBI T0 (positive perceptions/negative perceptions of burnout)

Hypotheses:

1. Staff with negative perceptions of the ward climate (VOTE T0) will have negative perceptions of barriers to change (VOCALISE T0)
2. Staff with negative perceptions of barriers to change (VOCALISE T0) will have low work satisfaction (IWS T0)
3. Staff with negative perceptions of barriers to change will experience burnout (MBI T0)

Did negative perceptions of ward climate worsen perceptions of barriers to change (model 7.12)?
A random effects model which clustered on ward was built up with perceptions of barriers to change (VOCALISE T0) as the dependent variable.

Did negative perceptions of barriers to change decrease work satisfaction (model 7.13) and increase burnout (model 7.14)?
Two final random effects models, which clustered on ward, were produced with work satisfaction (IWS T0) and then burnout (MBI T0) as the outcomes. The dependent variable was perceptions of barriers to change (VOCALISE T0).

6.10 Longitudinal Study - Twelve Month Follow-up Assessment

Lewin (1951) and later Schein (1996) suggested that when individuals are exposed to organisational changes, they either embrace or reject them, in order to cope with the disruption that they bring. This study was therefore conducted to examine whether the period of innovation and change introduced by the DOORWAYS trial had an impact on staff perceptions of barriers to change (VOCALISE) at follow up.

Although evidence explaining how nursing staff in mental health wards might respond to change is scarce, there is some qualitative evidence that these staff resist changes in the context of other features of acute ward working (Brennan, Flood et al. 2006). As discussed above, these features might include a challenging ward climate, understood in terms of conflict (incidents), containment measures used to maintain safety, low staffing levels and high turnover. Therefore, perceptions of barriers to change and ward climate may be linked. Whether these other aspects of nurse's working lives also influenced perceptions of barriers to change was investigated, by taking account of staff demographics and ward climate indicators which were significant at baseline.

In addition, the literature suggests that on mental health wards, ward climate, work satisfaction and burnout are related constructs (Cleary 2004, Ward and Cowman 2007, Seed, Torkelson et al. 2010, Johnson, Wood et al. 2011). The wider literature links openness towards change to better job satisfaction (Wanberg and Banas 2000) and commitment to innovation to lower burnout (Wallin, Ewald et al. 2006). Therefore, any wider negative consequences of change related disruption over time was examined, according to perceptions of work satisfaction and burnout.

These analyses were conducted within the context of the DOORWAYS trial by using analyses that took both the control and intervention arms into consideration, as well as time and any intervention effect. Two key questions were explored.

1. *At follow up, did the DOORWAYS intervention (i.e. an experience of change) affect staff perceptions of barriers to change?*
2. *Did baseline perceptions of barriers to change and ward climate influence attitudes towards work satisfaction and burnout at the twelve-month follow-up?*

In this thesis, the focus is on perceptions of barriers to change (both the impact of change on those perceptions and potential wider effects as a result of them on burnout and work satisfaction). To answer question 1, the impact of the DOORWAYS trial on perception of barriers to change across time will be explored, taking baseline effects of ward climate into consideration, because acute wards often have volatile climates (McGeorge, Lelliott et al. 2001, Bowers, Hackney et al. 2007, Johnson, Wood et al. 2011), which may influence how staff regard changes. VOTE T1 data were available; however, any impact of the intervention on ward climate across time, was not explored as it was considered beyond the scope of this thesis. At completion, the DOORWAYS trial was expected to have a positive effect on ward atmosphere. It would be interesting to include VOTE T1 in future research as it is not yet clear how changes influenced ward climate, mid-way through the trial. A significant relationship between baseline perceptions of barriers to change and ward climate would remain highly likely.

6.10.1 **Missing data**

A sensitivity analysis was conducted to explore missing data, which revealed no significant differences in the baseline scores of those who completed the staff measures compared to those who completed at both baseline and T1 (see Appendix F, p.261). In this study there were a large number of missing data at follow up (only 43% of the baseline sample were repeat participants at T1). An approach that built on the cross-sectional analysis strategy was therefore developed, which used unstructured multivariate linear models.

Analysis: unstructured multivariate linear models and missingness

Laird and Waire (1982), White and Thompson (2005) and Frost, Kenward et al. (2008) have developed a technique using unstructured multivariate linear models which can handle substantial drop out rates in randomised controlled trials. These models are advantageous because they use both baseline and follow-up data as the outcome, which increases the sample size. Frost et al. (2008) have shown that this approach is robust in a study, which looked at the potential for multiple

brain scans to increase treatment efficiency by reducing measurement error. Whole brain atrophy was studied over two years in N=46 subjects with Alzheimer's disease compared to 23, well matched controls. They adopted a framework developed by Laird & Waire (1982) and used linear mixed models, which treated the follow-up and baseline measures, unaffected by treatment, as correlated outcomes. They concluded that the power of the study to detect changes, given the very high level of expected dropouts over 2 years, was improved. The models were able to handle a reduction in sample size, compared to a design using the conventional ANCOVA approach, and the point estimates were identical.

As discussed by Frost et al (2008), it is common practice in randomised controlled trials with repeated measures, such as DOORWAYS, to analyse the outcome using an analysis of covariance (ANCOVA) model with the baseline measure of the outcome included as a covariate. This type of model uses only fully completed cases and assumes that missing values are missing completely at random, which is conditional on the covariates included in the model. Only using data where staff had completed measures at T0 and T1 (N=54), as would be the case if the data in this study were assumed to be missing completely at random, would mean that the study was underpowered, because there were a large number of cases missing at follow up, as well as new participants to the study. However, the assumption that data were missing completely at random was unrealistic because there may have been additional, untested factors that affected why data were missing. In fact, staff with reservations about innovation may have been more likely to withdraw.

Given the values of VOCALISE T0 may affect the chance of data being missing at T1, unstructured multivariate linear models were adopted, which compared VOCALISE at baseline and 12 months, under the weaker assumption of missing at random. If data are missing at random, the emphasis is shifted so that, conditional on the fully observed variable (VOCALISE T0), the chance of seeing the partially observed variable (VOCALISE T1) is assumed not to depend on the values of VOCALISE T0. Whether participants withdraw from the trial or remain, the distribution of their data is conditionally the same, because their unobserved future is based on their observed past (Carpenter and Kenward 2013). This approach is also preferable to using multiple imputation, a less efficient form of this type of analysis, since the two approaches broadly coincide as the number of imputations gets large.

Unstructured multivariate linear models treat the baseline and T1 scores as a correlated outcome, whilst also adjusting the baseline scores to show ‘no treatment’, which is a prerequisite of a randomized controlled trial. In this study at baseline, there were differences observed between the scores of the intervention and control groups, which were likely to be present by chance. Hence, the models were adjusted for baseline differences and the treatment effect was estimated by considering that some participants scored less than others at baseline. ID (i.e. each participant) was included as a random effect because the data were clustered within groups (if participants had completed the measures more than once), and comparisons were made between groups (because the model examines whether participants' scores vary).

It was not possible to include ward as a cluster variable in these models due to the limited number of wards. Outcomes were still allowed to vary by individual, since the participant identifier remained as a random effect. Instead, the most effective method of representing ward climate in the models will be determined by testing ward variables (ward, ward climate and ward climate indicators: incidents and temporary staff) in model 8.1 to clarify the best fit to the data. These variables will be included in the models as fixed effects. To decide on the best model Akaike's Information Criterion will be used (Akaike 2011). The model that is most parsimonious, with the lowest AIC score, will be selected for interpretation.

All other covariates of interest were included as fixed effects. In addition, a modification was made to the group variable (which represented whether participants were assigned to the control group or the intervention group) so that there was no treatment effect observed at baseline (Laird and Waire 1982, Frost, Kenward et al. 2008). This allowed the baseline scores to be similar, to meet the criteria for a randomised controlled trial. The model predicted the outcome at both time points for all participants by using the data from those who completed at both time points and the data from those who only completed at time 1 (12 month follow up), adjusting for the other covariates. There was no additional information provided by the data of those who only completed at baseline. This was reasonable, since knowledge only of the baseline data of a participant does not inform their future data.

A number of steps were undertaken to prepare the data for this analysis, which are described in detail in chapter 8. Before any unstructured multivariate linear model was run, the mean scores of each outcome at baseline and T1 for those with repeated measures were graphed to show: i) whether scores changed over time and ii) whether these effects were different according to group.

Mean outcome scores were computed after the models using the Stata command *lincom*. This provides point estimates with confidence intervals for the linear combination. Model fit was assessed using residuals for the outcome in all examples, tailored to explain aspects of the models. These are presented in Appendix E.2, p.258), as there were no examples of significant departure from the model assumptions.

6.10.2 Did participation in the intervention affect perceptions of barriers to change (model 8.1)?

Hypothesis: Those who participated in the intervention (an intense period of change) will have more negative perceptions of barriers to change than those in the control group.

In model 8.1, the outcome variable was staff perceptions of barriers to change (VOCALISE) and the main predictors of interest (included as fixed effects) were as follows:

- Time: the adjusted change in the outcome between time 0 (baseline) and time 1 (12-month follow-up).
- Treatment group (intervention effect): this variable shows the adjusted change in score between groups (control and intervention) at time 1.

The covariates were:

- Ward: 8 wards were included in the model (4 control & 4 intervention wards).
- Ward climate was explored by comparing the Ward variable to other measures of ward climate. These included a perceptions of ward climate measure (VOTE T0); as well as any ward level variables which had a significant effect on VOCALISE T0 which was decided from the baseline results.
- Any demographic variable which was proven to a significant effect on staff perceptions of barriers to change at baseline.

6.10.3 Did participation in the intervention affect perceptions of powerlessness, confidence and demotivation (models 8.2-8.4)?

Hypothesis: Following a period of intense change, those who participated in the intervention will have more negative perceptions of powerlessness or confidence or demotivation than those on the control wards.

Models 8.2-8.4 repeated the same process with the subscales of VOCALISE as the correlated outcomes.

6.10.4 Did perceptions of barriers to change influence work satisfaction and burnout (models 8.5-8.6)?

Hypothesis: Perceptions of barriers to change (VOCALISE) at baseline will influence perceptions of work satisfaction (IWS) and burnout (MBI) at follow-up.

Models 8.5 and 8.6 repeated the same process as outlined with first work satisfaction and then burnout as correlated outcomes. The aim was to test the effect of staff perceptions of barriers to change on work satisfaction and burnout longitudinally, given that change itself was expected to influences the VOCALISE scores.

The main predictors of interest were:

- Time: the adjusted change in the outcome between time 0 (baseline) and time 1 (12 month follow-up).
- Treatment group (intervention effect): this variable shows the adjusted change in score between groups (control and intervention) at time 1.
- VOCALISE T0: perceptions of barriers to change

The covariates were:

- A ward climate variable which was determined by the results of model 1 (longitudinal study).
- Any demographic variable which was proven to a significant effect on staff perceptions of barriers to change at baseline.

6.11 Summary

This chapter described the methods used to analyze:

1. Potential predictors of staff perceptions of barriers to change at baseline (cross sectional study).
2. The anticipated negative impact of the DOORWAYS intervention (i.e. an experience of change) on staff perceptions of barriers to change at the twelve-month follow-up.
3. The expected negative impact of baseline perceptions of barriers to change and ward climate on work satisfaction and burnout at the twelve-month follow-up.

The following chapter will present the results of the cross sectional study so that likely predictors of perceptions of barriers to change can be determined. This will be the first step in a process to build models that examine the impact of innovation on perceptions of barriers to change over time.

Chapter 7 : A cross sectional exploration of perceptions of barriers to change

7.1 Introduction

In this chapter, baseline investigations will identify which variables significantly affect perceptions of barriers to change and will enable potential confounders to be controlled later, in the longitudinal study. This is necessary because VOCALISE is a new measure with no known predictors. Identifying predictors of barriers to change may also spotlight where intervention may be required in future implementation studies. As the subscales (powerlessness, confidence, and demotivation) may show different effects than the total score, both will be explored.

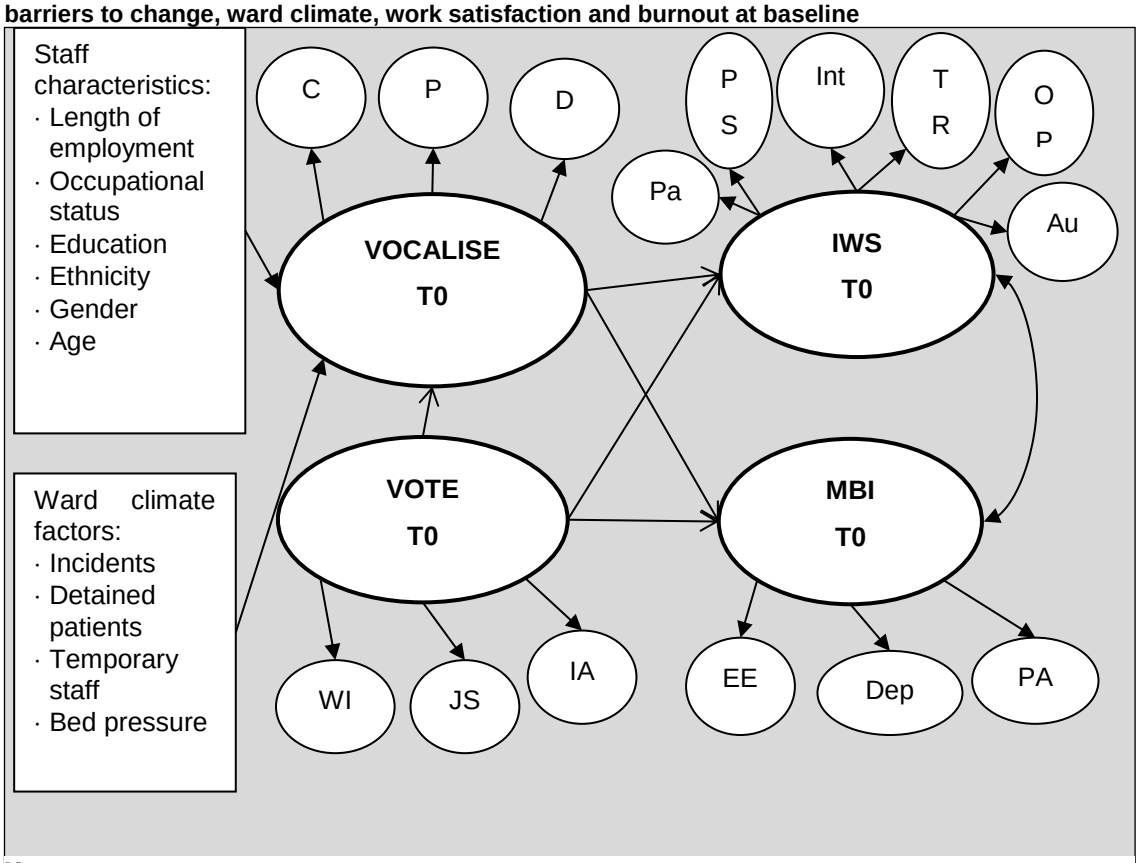
As detailed in chapter 6, the aim of the DOORWAYS project was to integrate a menu of ward-led therapies in eight acute, mental health wards and to assess their impact on staff and service user perceptions. At T0, which is the focus of this chapter, staff were aware of DOORWAYS, but the changes had not yet started. Some background research and contextualizing data are also included to illuminate which staff or service differences might explain variations in staff perceptions. It is also useful to note that there were 8 wards in the sample, and all are included in each random effects model as a cluster variable, unless it is stated otherwise. After each random effects model, post estimation analyses were carried out and marginal means will be presented.

7.2 Aims

- To identify demographic predictors of staff perceptions of barriers to change.
- To explore the effects of these predictors on the subscales of VOCALISE (powerlessness, confidence, and demotivation).
- To assess whether ward climate affects perceptions of barriers to change.
- To examine whether perceptions of barriers to change and ward climate influence work satisfaction and burnout.

The following conceptual model (figure 7.1) was developed by drawing from the literature and the qualitative material already presented. The model outlines hypothesised relationships between staff characteristics, ward climate factors and perceptions of barriers to change (VOCALISE), which will be tested.

Figure 7.1: Conceptual model showing the hypothesised relationships between perceptions of barriers to change, ward climate, work satisfaction and burnout at baseline



Key:
VOCALISE: C=Confidence; P=Powerlessness, D=De-motivation (VOCALISE subscales)
VOTE: WI=Work Intensity, JS=Job Satisfaction, IA=Interaction Anxiety
IWS: Pa=Pay; PS= Professional Status, Int=Interaction, TR=Task Requirements, OP=Operational Policies, Au=Autonomy
MBI: EE=Emotional Exhaustion; Dep=Depersonalisation; PA=Personal Accomplishment

Bowers, Nijman et al. (2011) have shown that teamwork and, to a lesser extent, leadership influence how effectively wards structure their working practices, which in turn influences burnout. There is also evidence of a positive effect of leadership on mental health employee views of implementation climate during active implementation phases (Aarons and Sommerfeld 2011). It was not possible to include measures of leadership and team climate in this model, which was constrained by the wider programme grant.

It may be considered a limitation that specific measures of team climate and leadership are not included, as these issues are likely to affect how staff view changes. However, as discussed in chapter 3, (section 3.6.8), the VOTE measure captures aspects of daily working life for mental health nursing staff and includes items that address leadership and teamwork. To explore whether these constructs independently influence VOCALISE would require further factor development for the VOTE measure. At this stage, both leadership and teamwork are included in the same total score for VOTE.

7.3 Sample

At baseline, 125 staff of all grades participated in the DOORWAYS project (table 7.1). On each ward, the completion rate was between 65-100% of all available nursing staff per ward. Table 7.1 highlights service differences. Seven wards were acute mental health wards. Ward four was a specialist service run by women for women experiencing a mental health crisis, hence there were no male nurses present. Generally, there were less men represented in the sample because there are less male nurses employed on the wards than female nurses. Across the wards, the ethnicity and age of staff were similar.

Table 7.1: Characteristics of all T0 staff participants

Wards		**Demographic Variables**								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total (%)**
N=	**No. of staff**	18 (15)	13 (10)	16 (12)	8 (6)	19 (15)	15 (12)	18 (15)	18 (15)	125 (100)
Staff Grade	**HCA**	7	3	6	1	5	4	7	6	39 (31)
	Band 5	8	7	7	3	12	8	7	6	58 (47)
	Band 6	1	2	1	3	1	0	3	4	15 (12)
	Band 7	1	1	1	1	1	1	1	1	8 (6)
	missing	1	0	1	0	0	2	0	1	5 (4)
Ethnic Group	**White British /Other**	6	2	3	4	5	3	4	6	33 (27)
	BME	12	11	12	4	14	12	14	10	89 (71)
	missing	0	0	1	0	0	0	0	2	3 (2)
Gender	**Male**	3	7	12	0	9	3	9	3	46 (37)
	Female	15	6	4	8	10	12	9	15	79 (63)
Age	**Mean (Scott and Pollock)**	39.63 (13.0)	36.38 (7.61)	38 (7.93)	44.25 (4.80)	43.26 (9.94)	35.38 (8.82)	39.6 (8.61)	40.07 (9.85)	39.57
	max/ min	27-50	22-62	24-55	37-49	26-67	22-48	27-55	23-54	N/A

7.4 Results

7.4.1 Which staff characteristics affected perceptions of barriers to change (model 7.1)?

Previous research shows mixed results for the effect of demographic characteristics on how staff view innovation (Vroom and Pahl 1971, Bantel and Jackson 1989, Iverson 1996, Vakola, Tsaousis et al. 2003, Haar, Spell et al. 2005, Benn, Burnett et al. 2009). Therefore, length of employment, occupational status, education, ethnicity, gender and age were included as covariates in the following model to explore how staff characteristics affected perceptions of barriers to change.

Hypothesis: Occupational status, age, education, length of employment, ethnicity and gender will affect perceptions of barriers to change.

Table 7.2: The effects of staff characteristics on perceptions of barriers to change (model 7.1)

Variables	Coef. β	S.E	P	95% CI	
				UL	LL
Length of employment: -41 months/42 months+	*3.87*	*2.46*	*0.12*	*-0.95*	*8.68*
Occupational status: manager/direct care staff	***-5.15***	***2.83***	***0.07***	***-10.69***	***0.40***
Education: Degree/or No	*0.15*	*2.58*	*0.96*	*-4.91*	*5.20*
Ethnicity: White British/BME	*2.51*	*2.77*	*0.37*	*-2.92*	*7.93*
Staff gender: Male/Female	*-1.63*	*2.59*	*0.53*	*-6.71*	*3.45*
Age: 39years/40+	***-5.67***	***2.57***	***0.03***	***-10.70***	***-0.64***
_cons	*62.48*	*3.16*	*0.00*	*56.38*	*68.59*

(N=87; 8 wards; obs per ward: min=8, average=10.9, max=15)
(Sigma_u = 3.05; sigma_e = 10.46; rho = 0.08)

Overall, the demographic variables accounted for 12% of the variance in the data. As the random effects estimator has asymptotic properties chi squared is reported ($\chi^2(6) = 11.98$; p=0.06), which showed a trend in the overall significance of the model. There was a significant effect of age on baseline perceptions of barriers to change (VOCALISE T0). A trend was observed in the effect of occupational status on perceptions of barriers to change.

Mean estimates for occupational status were calculated, based on the predictions in model 7.1. Staff who were 40 years or more had more positive perceptions of barriers to change (predicted mean VOCALISE T0 score = 57.69, S.E. 2.12, 95% C.I: 53.54 to 61.83) than those who were 39 or less (predicted mean VOCALISE T0 score = 63.35, S.E. 1.95; 95% C.I: 59.53 to 67.17). As the effects of occupational seniority on perceptions of barriers to change showed a trend, post hoc analyses were also conducted for these results. Those in more senior positions had more positive VOCALISE T0 scores (predicted mean VOCALISE T0 score = 56.85, S.E: 2.68, 95% C.I: 51.60 to 62.10) than those in direct care positions (predicted mean VOCALISE T0 score = 62.0, S.E:

1.71, 95%C.I: 58.65 to 65.34). To clarify whether the effect of occupational seniority on VOCALISE T0 was due to higher numbers of older staff being present in that group, a chi squared test was used. The results showed that older staff members were no less likely to be in the senior staff group than younger staff members ($\chi^2(1, N=109) = 0.39$, p not significant). In fact, 10 managers were 39 years old or less, and 12 managers were 40 years old or more.

7.4.2 How did significant demographic characteristics affect VOCALISE subscales (Confidence, Powerlessness and Demotivation) (models 7.2-7.4)?

As it was possible that predictors of VOCALISE would impact its' subscales differently, the effects of age and occupational status were explored with VOCALISE: Confidence, Powerlessness, Demotivation as the dependent variables in three additional random effects models.

In *Random Effects Model 7.2*, Powerlessness T0 was significantly associated with occupational seniority (Coef: -3.04, S.E: 1.25, p=0.02, 95%C.I: -5.48 to -0.60; N=107, 8 groups). Powerlessness T0 was not significantly associated with age. The overall model was significant ($\chi^2(2) = 8.42$; p=0.01) and these predictors accounted for 7.5% of the variance in the dependent variable.

Post hoc, staff in more senior positions felt less powerless (predicted mean Powerlessness T0 score = 21.28; S.E: 1.11; 95%C.I: 19.10 to 23.45) than those in direct care positions (predicted mean Powerlessness T0 score = 24.31; S.E: 0.56; 95%C.I: 23.21 to 25.42).

In *Random Effects Model 7.3*, there was a significant effect of occupational status on Confidence T0 (Coef: -3.16, S.E: 1.04, p=0.002, 95%C.I: -5.21 to -1.11; N=104, 8 groups). Confidence T0 was not significantly associated with age. The overall model was significant ($\chi^2(2) = 9.60$; p=0.008) and these predictors accounted for 7.1% of the variance in the dependent variable.

Post estimation, staff in more senior positions were more confident (predicted mean Confidence T0 score = 14.76; S.E: 1.10; 95%C.I: 12.61 to 16.92) than those in direct care positions (predicted mean Confidence T0 score = (17.92; S.E: 0.78; 95% C.I: 16.39 to 19.45).

In *Random Effects Model 7.4*, the Demotivation T0 subscale had a strongly significant association with age only (Coef: -2.37, S.E. 0.82, p= 0.004, 95% C.I: -4.00 to -0.75, N=104, 8 groups). The model was significant ($\chi^2(= 8.38$; p= 0.02) and these variables accounted for 7.7% of the variance in the dependent variable.

Post hoc, those who were less than 39 years of age expressed higher levels of de-motivation (predicted mean Demotivation T0 score = 22.15; S.E: 0.58; 95% C.I: 21.02 to 23.29) than those who were older than forty (predicted mean Demotivation T0 score =19.79; S.E: 0.59; 95% C.I: 18.62 to 20.94).

7.4.3 **Summary**

Age significantly predicted staff perceptions of barriers to change. The effect of occupational status on staff perceptions of barriers to change showed a trend. Occupational status significantly affected confidence and powerlessness. Age predicted demotivation. All these predicted only a small amount of variance.

7.4.4 **Ward climate indicators**

In the U.K, most mental health settings operate within a framework of risk management which feeds into the climate of the ward. As discussed in chapter 2, factors associated with risk and limited resources may create a ward climate which staff perceive as more unstable (Bowers, Simpson et al. 2003, Cleary 2004, Brennan, Flood et al. 2006). Although ward climate issues have been linked to increased negativity around change qualitatively (Brennan, Flood et al. 2006), quantitative assessments are lacking in acute in-patient settings.

In this study, objective measures of ward climate were captured describing the number of incidents, containment practices, service user gender, numbers of temporary staff, and number of patients on the ward. Background data describing incidents, admissions and number of beds (caseload) were provided by the NHS trust under study for the months of March and April 2009 as this corresponds with the dates of data collection for the DOORWAYS study. Background information detailing service user characteristics is also available in Appendix H (p. 269).

7.4.5 **Incidents**

How does the incident data from the NHS trust under study compare to other trusts?

The national data for incidents from 1st October 2008 to 31st March 2009 are measured across eleven categories in sixty-seven trusts (NPSA 2009). The categories were broadly representative and included:

Table 7.3: National incident data

National data	***Trust data***
Access, admission, transfer	
Consent, communication, confidentiality	Confidentiality
Disruptive aggressive behaviour	Violence/aggression/assault
Documentation	IT/health records
Infrastructure	
Medication	
Patient abuse (by a third party including staff)	Security
Patient accident	- Patient accidents/health and safety/fire - Staff accidents/health and safety/fire
Self-harming behaviour	Self-harm/suicide
Treatment procedure	Clinical care (AWOL, substance use, other unexpected outcome)
Other	All other incidents (Including Unwell/Illness)

The rate of incidents was comparatively high. The total number of incidents in the Trust under study was 2445, at a rate of 21.53 per 1000 bed days, which puts it in the top quartile for incident

rates. The category with the highest number of incidents was disruptive, aggressive behaviour (n=923), followed by patient accident (n=392) and self-harming behaviour (n=326). This information suggests that the ward staff in this Trust are working in comparatively volatile climates.

How many incidents occurred during the study period?

Table 7.4: Incidents (recorded over 30 days of data collection)

WARD	***1***	***2***	***3***	***4***	***5***	***6***	***7***	**8**
Incidents	11	1	1	1	1	1	1	1

In table 7.4, a total score of all incidents per ward is presented. Within the time period of data collection, only one incident was recorded for each ward with the exception of one ward which had eleven incidents. There was no additional information available to explain this finding. Although this lack of variation is clearly a limitation of these data, it may be useful to test whether perceptions of barriers to change were worse on the ward with a comparatively high number of incidents, to inform future studies.

What was the effect of incidents on perceptions of barriers to change at baseline (model 7.5)?
Hypothesis: Negative staff perceptions of barriers to change will be significantly associated with high numbers of incidents.

In this model, the dependent variable was staff perceptions of barriers to change. The incidents variable was the predictor, dichotomised into high/low numbers. Covariates included age and occupational status.

Table 7.5: The effect of incidents on perceptions of barriers to change including age and occupational status (model 7.5)

Variables	**Coef. β**	**S.E.**	**P**	**95% CI**	
				UL	**LL**
Incidents: high/low numbers	***7.19***	***3.06***	***0.02***	***1.18***	***13.20***
Occupational status: manager/direct care staff	***-5.03***	***2.63***	***0.06***	***-10.20***	***0.13***
Age: -39years/40+	***-4.71***	***2.11***	***0.03***	***-8.84***	***-0.57***
_cons	64.06	1.61	0.000	60.90	67.22

(N=109; 8 wards, obs per ward: min=8, average=13.6, max=19)
(Sigma_u = 0, sigma_e = 10.63, rho = 0)

This model suggests that staff perceptions of barriers to change were significantly more negative on the ward with a higher number of incidents. The variables included in this model account for 13% of the variance in the data and the model was significant overall (χ^2 (3) =15.48 p=0.001). As before, age was significant and occupational status showed a trend.

In wards with low numbers of incidents, staff had more positive perceptions of barriers to change (mean VOCALISE T0 score = 60.76, S.E. 1.13, 95% C.I: 58.54 to 62.98) than on the ward with a higher rate of incidents (mean VOCALISE T0 score =67.95, S.E. 2.84; 95% C.I: 62.37 to 73.53).

7.4.6 **Containment measures (close observations and the number of detained patients)**

Bowers, Simpson et al. (2003) have studied containment measures, such as close observations and seclusion, as distinct from violence/incidents because they may have different causes and effects. This approach is replicated here, since the increased need to keep the ward 'safe' may present barriers to delivering changes for nurses. On wards where the use of close observations and detention is common, a greater disruption to ward atmosphere is implied, and it might be expected that staff have less positive perceptions of barriers to change.

Table 7.6 shows that during this study, close observations were in greater use on female only wards. The numbers of patients on a section of the Mental Health Act (2007) was fairly consistent across the acute wards with the exception of ward 4, where methods of containment were not in use. Both close observations and number of detained service users were recorded over the first seven days of data collection to provide a snapshot of these ward practices.

Table 7.6: Containment and gender (recorded over 7 days)

WARD		***1***	***2***	***3***	***4***	***5***	***6***	***7***	**8**
Containment (over 7 days)	**Hours of 1:1's**	63	0	0	0	15	168	0	160
	Detained patients	13	13	17	0	13	16	13	14
Gender	**(M/F)**	**F**	M	M	F	M	F	M	F

Did the use of close observations worsen perceptions of barriers to change?

Hypothesis: High levels of close observations will negatively affect perceptions of barriers to change.

Given these data were restricted, a t-test comparing staff perceptions of barriers to change at the women's service to those working in the other three female only acute wards was conducted. The results showed that staff perceptions of barriers to change were more positive at the women's service (mean = 56.13, sd 11.45, N=8), compared to those of staff on the female only acute wards (mean = 63.79, sd 11.05, N=48), and this effect showed a trend t(54) = -1.81, p=0.08).

Did high numbers of detained service users negatively influence how staff perceived barriers to change (model 7.6)?

Hypothesis: Perceptions of barriers to change will be more negative on wards with higher numbers of patients detained under the Mental Health Act (2007).

Whether high numbers of sectioned patients worsened perceptions of barriers to change was examined in a random effects model that also included incidents, occupational status and age.

Table 7.7: The effect of detained service users on perceptions of barriers to change, including incidents, occupational status and age (model 7.6)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Detained patients	-0.08	0.270	0.76	-0.61	0.45
Incidents: high/low numbers	***7.13***	***3.08***	***0.02***	***1.08***	***13.17***
Occupational status: manager/direct care staff	***-5.24***	***2.73***	***0.06***	***-10.59***	***0.12***
Age: -39years/40+	***-4.80***	***2.14***	***0.03***	***-8.99***	***-0.60***
_cons	65.27	4.28	0.00	56.89	73.66

(N=109, 8 wards, obs per ward: min=18, average=13.6 max=19)
(Sigma_u = 0, sigma_e **=** *10.63, rho = 0)*

Detained patients did not impact staff perceptions of barriers to change. There were significant effects of age and incidents and occupational status showed a trend. The variables included in this model accounted for 13% of the variance in the dependent variable. The model was significant overall ($\chi^2(4)= 15.44$; p=0.004).

7.4.7 Bed pressure: do high numbers of admitted service users affect staff perceptions of barriers to change?

As discussed in chapter 2, administrative aspects of nursing care such as bed management may increase workload and work related stress in nurses (Cleary 2004, Brennan, Flood et al. 2006). The qualitative reports by staff in chapter 4 also described how bed pressure had a negative emotional impact on staff. Both issues may increase how negatively staff perceive changes.

In the Trust under study, there were clear differences in the numbers of admissions around the time of data collection (table 7.8).

Table 7.8: Bed pressure

WARD	1	2	3	4	5	6	7	8
Month during '09	March	March	March	April	March	March	March	March
Total admissions	52	23	27	14	50	36	31	32
Number of beds	22	19	18	8	25	18	18	15
Admissions/ beds	2.36	1.21	1.5	1.75	2	2	1.72	2.13

The number of admissions was higher on wards one, five, six and eight. Data describing the length of bed occupancy for those admitted was not available, which is a limitation. All wards included in this study were admitting patients who required 24-hour hospital care for a range of mental health diagnoses, and who were aged between 16 and 65. It is likely that on wards with greater numbers of service users, staff may have experienced greater workload pressure and more negative responses to change.

Did bed pressure worsen perceptions of barriers to change (model 7.7)?

Hypothesis: perceptions of barriers to change will be negatively associated with wards with high numbers of service users on the ward.

In this model, the dependent variable was perceptions of barriers to change. Age, occupational status and incidents were included and the main predictor was the number of service users on the ward (over 30 days).

Table 7.9: The effect of high numbers of service users (bed pressure) on perceptions of barriers to change, including incidents, occupational status and age (model 7.7)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Numbers of service users (over 30 days)	-0.10	0.11	0.33	-0.31	0.11
Incidents: high/low numbers	***8.42***	***3.31***	***0.01***	***1.93***	***14.92***
Occupational status: manager/direct care staff	***-5.71***	***2.73***	***0.04***	***-11.06***	***-0.37***
Age: -39years/40+	***-5.00***	***2.13***	***0.02***	***-9.18***	***-0.82***
_cons	67.66	4.02	0	59.78	75.54

(N=109; 8 wards, obs per ward: min=8, average=13.6, max=19)
(Sigma_u = 0, sigma_e = 10.67, rho = 0)

There was no significant effect of the number of service users on the ward on staff perceptions of barriers to change. The variables entered into this model represented 0.14% of the variance and the model was significant (χ^2 (4) = 16.43; p=0.003). As shown previously, there were significant effects of incidents, occupational status and age.

7.4.8 **Staffing: does the use of temporary staff affect perceptions of barriers to change?**

As discussed in chapter 2, shifts that cannot be occupied by permanent staff are outsourced to an agency so that temporary staff can be substituted (Garcia, Kennett et al. 2005, Brennan, Flood et al. 2006, Samarasekera 2007, Bowers, Allan et al. 2009, Hurst and Smith 2011). In mental health, the impact of large numbers of temporary staff on the consistent delivery of changes is relatively under researched, but it is likely to adversely affect innovation. Indeed, in the qualitative phase of this study, staff reported that high numbers of agency staff prevented changes from being delivered successfully.

In this study, the number of staff required on each shift was fairly consistent across the trust (table 6.10).

Table 7.10: Numbers of 'typical' staffing requirements per shift

Ward	Staff to patient ratio			Total	
	Early shift	Late shift	Night shift	Daily	Weekly
Ward 1	6	6	4	16	112
Ward 2	4	4	3	11	77
Ward 3	4	4	3	11	77
Ward 4	2	2	2	6	42
Ward 5	6	6	4	16	112
Ward 6	4	4	3	11	77
Ward 7	4	4	3	11	77
Ward 8	4	4	3	11	77

When comparing table 7.10 to table 7.8, the figures suggest that the lowest number of staff to patients was on ward 2. Wards 1 and 8 had the highest staff to patient ratio but also comparatively higher numbers of admissions. Wards six, seven and in particular ward two, had higher number of temporary staff during the first seven days of data collection. This may have affected staff perceptions of barriers to change and will be explored.

Table 7.11: Numbers of temporary staff (recorded over 7 days)

Ward	1	2	3	4	5	6	7	8
Total temporary staff (% of total weekly staff)	25 (22)	61 (79)	19 (25)	14 33)	10 (9)	43 (56)	37 (48)	18 (23)

Did high numbers of temporary staff adversely affect perceptions of barriers to change (model 7.8)?

Hypothesis: On wards with high numbers of temporary staff, perceptions of barriers to change will be more negative.

In this model, the dependent variable was staff perceptions of barriers to change and the main predictor of interest was temporary staff. Variables which had a significant impact in previous models (incidents, occupational status and age) were also included.

Table 7.12: The effect of temporary staff on perceptions of barriers to change, including incidents, occupational status and age (model 7.8)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Temporary staff	***0.18***	***0.06***	***0.005***	***0.06***	***0.31***
Incidents: high/low numbers	***7.71***	***2.97***	***0.01***	***1.88***	***13.54***
Occupational status: manager/direct care staff	***-5.37***	***2.55***	***0.04***	***-10.38***	***-0.37***
Age: -39years/40+	***-3.64***	***2.08***	***0.08***	***-7.71***	***0.44***
_cons	58.55	2.51	0	53.63	63.46

(N=109, 8 wards, obs per ward: min=8, average=13.6, max=19)
(Sigma_u= 0, sigma_e = 10.67, rho = 0)

There was a significant effect of temporary staff on perceptions of barriers to change, although the beta is low, indicating that perceptions of barriers to change worsened only slightly (0.18) as a result of increased numbers of temporary staff. There were significant effects of incidents and occupational status, and age showed a trend. These variables accounted for 19% of the variance and the model was significant ($\chi^2(3) = 24.41$; $p>0.001$). Post estimation analyses showed that perceptions of barriers to change were more positive when less temporary staff were employed (predicted mean VOCALISE score 60.34; S.E: 1.32; 95% C.I: 57.75 to 62.92). In wards with more temporary staff, perceptions were worse (64.39; S.E: 1.83; 95% C.I: 60.80 to 67.98).

7.4.9 Subscales: how did significant ward climate factors affect Powerlessness, Confidence and Demotivation (models 7.9-7.11)?

Given the significant effects of incidents and temporary staff on staff perceptions of barriers to change in models 7.5 and 7.8, these effects were also tested with the VOCALISE subscales. Three additional random effects models were constructed, with the subscales of VOCALISE T0 as the dependent variables (*Model 7.9:* Powerlessness T0; *Model 7.10:* Confidence T0; *Model 7.11:* Demotivation T0). All significant covariates were included: temporary staff, incidents, occupational status and age.

Table 7.13: The effect of significant ward climate factors on Powerlessness T0, including temporary staff, incidents, occupational status and age (model 7.9)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Temporary staff	***0.05***	***0.03***	***0.08***	-0.01	0.12
Incidents: high/low numbers	2.03	1.43	0.16	-0.78	4.84
Occupational status: manager/direct care staff	***-3.03***	***1.23***	***0.01***	***-5.45***	-0.61
Age: -39years/40+	-1.08	1.01	0.29	-3.06	0.91
_cons	23.06	1.21	0	20.68	25.43

(N=107; 8 wards, obs per ward: min=8, average=13.4, max=19)
(Sigma_u = 0, sigma_e = 5.18, rho = 0)

In this model, there was a trend whereby higher numbers of temporary staff increased powerlessness. As was also shown in model 7.2, there was a significant effect of occupational status on powerlessness, whereby those in direct care positions had more negative perceptions. The variables included in model 7.9 accounted for 12% of the variance and the model was significant overall ($\chi^2(4) = 13.35$; $p=0.01$).

Table 7.14: The effect of significant ward climate factors on VOCALISE: Confidence T0, including temporary staff, incidents, occupational status and age (model 7.10)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Temporary staff	***0.10***	***0.03***	***>0.001***	***0.05***	***0.15***
Incidents: high/low numbers	***3.34***	***1.17***	***0.004***	***1.04***	***5.63***
Occupational status: manager/direct care	***-2.93***	***1.01***	***0.004***	***-4.91***	***-0.95***
Age: -39years/40+	-0.19	0.84	0.82	-1.84	1.45
_cons	14.66	1.00	0	12.69	16.63

(N=104; 8 wards: obs per ward: min=8, average=13, max=19)
(Sigma_u = 0, sigma_e = 4.20, rho = 0)

In this model, high numbers of temporary staff, incidents and holding a direct care position (as was also shown in model 7.3), significantly worsened perceptions of barriers to change. The variables included in model 7.10 accounted for 24% of the variance and the model was highly significant overall (χ^2 (3)= 31.76; p>0.001).

Table 7.15: The effect of significant ward climate factors on VOCALISE: Demotivation T0, including temporary staff, incidents, occupational status and age (model 7.11)

Variables	Coef. β	S.E.	P	95% CI	
				UL	LL
Temporary staff	***0.05***	***0.03***	***0.06***	***-0.01***	***0.10***
Incidents: high/low numbers	***2.19***	***1.19***	***0.06***	***-0.14***	***4.52***
Occupational status: manager/direct care staff	0.74	1.019	0.46	-1.24	2.73
Age: -39years/40+	***-2.02***	***0.83***	***0.01***	***-3.64***	***-0.40***
_cons	20.23	1.00	0	18.27	22.18

(N=104; 8 wards: obs per group, 13, 19 (min=8, average=13, max=19)
(Sigma_u = 8, sigma_e = 4.14, rho = 0)

As was also the case in model 7.4, in this model, younger staff had significantly less motivation. Incidents and high numbers of temporary staff also negatively affected staff perceptions of demotivation. The variables included in model 7.11 accounted for 13% of the variance and the model was highly significant overall (χ^2(3) = 15.23; p=0.004).

7.4.10 **Summary and discussion**

The ward climate indicators showed some significant effects on perceptions of barriers to change. High levels of incidents, temporary staff, and close observations worsened perceptions of barriers to change. High numbers of detained service users and high numbers of service users on the ward over 30 days did not affect perceptions of barriers to change.

Also common to the models where VOCALISE is the dependent variable, is a pattern whereby direct care and younger staff had more negative perceptions of barriers to change. As expected, there were different effects when the subscales were used as dependent variables because, as shown previously (in models 7.2-7.4), occupational status affected powerlessness and confidence, whilst age did not; and age affected demotivation, whilst occupational status did not.

From a statistical perspective there are limitations in the ward level data, and in particular, the incidents and close observations variables which showed insufficient variability. In addition, the sample is small, given only eight wards are included in the study. Inferences from these results should therefore be drawn with caution.

Given the limitations of these ward level climate indicators, it may be more useful to consider alternative measures of ward climate. A scale measuring staff perceptions of ward climate may gauge climate more effectively by including a greater variety of items to capture subtle details. In this way, it may be possible to reflect the level of disturbance on the ward across a period of time using one measure, rather than requiring a number of ward level indicators to capture all the features which may influence ward volatility.

The Views on the Therapeutic Environment measure (VOTE) was developed for used in the DOORWAYS study. This measure was designed to capture staff perceptions of the daily stressors of acute ward working (Appendix D.2, p.250). However, many of these can be considered to be ward climate factors. The VOTE measure also includes specific items which address staffing, violence and bed pressure:

11. Finding enough staff to cover shifts is easy on my ward.
14. There are enough staff to maintain safety on my ward.
19. I worry about violence and aggression when at work.
12. On my ward there is immense pressure to create bed space.

VOTE also includes items address difficulties in staff/staff and staff/patient interactions, which might contribute to an overall perception of disturbance:

2. Patients can feel that there is a sense of 'them and us' on my ward.
23. I'd rather not address relationship issues between teammates because it will create a bad atmosphere.

7.4.11 Staff perceptions measures (work satisfaction, burnout and ward climate)

As discussed in chapter 2, given the evidence that working in acute wards can lead to adverse outcomes such as decreased work satisfaction and increased burnout (Severinsson and Hummelvoll 2001, Cleary 2004, Fourie, McDonald et al. 2005, Aarons 2006, Ward and Cowman 2007, Seed, Torkelson et al. 2010, Johnson, Wood et al. 2011); relationships between ward climate, work satisfaction, burnout and perceptions of barriers to change are likely. In addition, some studies have suggested that ward climate, work satisfaction and burnout may be linked to staff acceptance of innovation (Parker, Baltes et al. 2003, Martin, Jones et al. 2005, Wallin, Ewald et al. 2006, Aarons and Sawitzky 2006a, Aarons and Sawitzky 2006b). These relationships have not yet been adequately explored in acute mental health settings.

How do work satisfaction and burnout in this study compare to other studies?

In order to give some context to staff scores of work satisfaction and burnout, the baseline scores in this study were compared to previous mental health nursing research. Five studies which have used the Maslach Burnout Inventory (MBI) in the field were considered (Maslach, Jackson et al. 1996, Prosser, Johnson et al. 1996, Tyson, Lambert et al. 2002, Bowers, Allan et al. 2009, Hanrahan, Aiken et al. 2010). These studies, investigated burnout amongst mental health nurses on wards in Australia, U.K, and U.S.A, and together had an average MBI total score of 59. In this study, the mean MBI total score was 66 (sd = 16.78; lowest score = 19; highest score = 118), which indicated higher levels of burnout.

The Index of Work Satisfaction (IWS) has been less widely used in mental health nursing. Three studies from the wider nursing literature which had used the IWS in the field were considered (Tumulty et al. (N=159); Jernigan et al. 2001 (N=154); Takase et al., 2001 (N=82). These studies included general and acute care nursing staff. Additionally, the comprehensive work by Stamps, 1997 (N=42 studies), which accessed a variety of areas of nursing, including two psychiatric

hospitals was included. These comparison studies included participants from the U.S.A, Canada and Australia. One U.K study (Burnard, Morrison et al. 1999) has been conducted with psychiatric nurses, but it was excluded from this comparison because it uses a five point Likert scale which was not readily comparable with the other studies which used the standard seven point scale. The mean job satisfaction score across the four, included published studies was 171. In this study, the sample had a mean job satisfaction score of 169 (sd 29.79; lowest score = 92; highest score = 245) which indicates similar perceptions of job satisfaction.

As VOTE and VOCALISE were newly developed the scores could not be compared to previous studies. However, table 7.16 shows that there was some variation by ward according to all staff measures, which suggested that random effects regression modelling would be suitable. Initial assessments testing the distribution of these data showed no significant departure from normality in any staff variable.

Table 7.16: Mean scores for all staff measures by ward

Pro-rated total scores	**WARD**							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
VOCALISE Mean	68.87 (9.8)	69.54 (8.28)	64.40 (10.21)	56.13 (11.46)	56.26 (10.12)	61.08 (12.76)	59.95 (13.47)	60.94 (9.37)
VOTE Mean	77.56 (12.32)	78.62 (8.70)	70.93 (9.06)	61.92 (12.20)	65.91 (12.20)	74.38 (14.76)	69.71 (14.07)	68.90 (7.67)
MBI Mean	66.95 (15.93)	68.70 (19.96)	64.90 (16.11)	65.5 (19.73)	64.45 (12.00)	69.42 (15.12)	68.88 (24.59)	60.62 (10.76)
IWS Mean	188.74 (25.39)	192.69 (27.70)	169.35 (15.74)	164 (23.51)	154.53 (27.42)	170.77 (31.28)	163.42 (39.95)	157.22 (21.76)

The conceptual model described at the beginning of this chapter was tested in sections using random effects models, clustered on ward. The dependent variable was staff perceptions of barriers to change. Staff perceptions of ward climate (VOTE: model 7.12) work satisfaction (IWS: model 7.13) and burnout (MBI: model 7.14) were the predictors. These variables were dichotomised at the median into two categories: positive/negative perceptions. Staff characteristics, which were found to significantly affect perceptions of barriers to change in sections one and two were also included (age, occupational status).

Did perceptions of ward climate influence perceptions of barriers to change (model 7.12)?
Hypothesis: staff with negative perceptions of the ward climate (VOTE T0) will have negative perceptions of barriers to change (VOCALISE T0).

Table 7.17: The effects of perceptions of ward climate (VOTE T0) on perceptions of barriers to change (VOCALISE T0), including occupational status and age (model 7.12)

Variables	**Coef. β**	**S.E**	**P**	**95% CI**	
				UL	**LL**
Ward climate: VOTE T0 (positive/negative perceptions)	***12.30***	***1.87***	***>0.001***	***8.63***	***15.97***
Occupational status: manager/direct care staff	-4.29	2.32	0.06	-8.83	0.25
Age: -39years/40+	-2.33	1.86	0.21	-5.98	1.32
_cons	57.71	1.76	>0.001	54.27	61.15

(N=106; 8 wards; obs per ward: min=8, average=13.3, max=18)
(Sigma_u = 0, sigma_e = 9.30, rho = 0)

Model 7.12 indicates a significant effect of staff perceptions of ward climate (VOTE T0) on perceptions of barriers to change. The effect of occupational status showed a trend. The predictors included in this model represented 36% of the variance in the dependent variable (i.e. VOCALISE), and the overall model was significant $\chi^2(3) = 56.58$; p>0.001).

Post estimation analyses showed that those with more positive perceptions of ward climate (i.e. lower VOTE T0 scores) had a predicted mean VOCALISE T0 score of 55.76 (S.E. 1.32; 95% C.I.53.17-58.35). The predicted mean value for VOCALISE T0 in staff with worse perceptions of ward climate (i.e. higher VOTE T0) scores was 68.06 (S.E. 1.30; 95% C.I. 65.52-70.60). Therefore, staff with negative perceptions of ward climate also had negative perceptions of barriers to change.

Did perceptions of barriers to change affect perceptions of work satisfaction at baseline (model 7.13)?

Hypothesis: staff with negative perceptions of barriers to change (VOCALISE T0) will have poor work satisfaction (IWS T0).

Table 7.18: The effects of perceptions of barriers to change and ward climate (VOCALISE T0 and VOTE T0) on work satisfaction (IWS T0), including occupational seniority and age (model 7.13)

Variables	Coef. β	S.E	P	95% CI	
				UL	LL
Barriers to change: VOCALISE T0 (positive/negative perceptions)	12.59	5.27	0.02	2.26	22.92
Ward climate: VOTE T0 (positive/negative perceptions)	28.05	4.98	0.001	18.29	37.80
Occupational status: manager/direct care staff	-6.25	6.01	0.30	-18.03	5.53
Age: -39years/40+	-2.16	4.84	0.66	-11.64	7.33
_cons	150.26	6.94	0	136.66	163.86

(N=92; 8 wards, obs per ward: min=7, average=11.5, max=18)

(Sigma_u= 13.04, sigma_e=21.62, rho=0.27)

Model 7.13 shows that staff perceptions of barriers to change (VOCALISE T0) and of ward climate (VOTE T0) significantly affected work satisfaction (IWS T0), and this remained true after controlling for demographic factors. The predictors included in the model represent 43% of the variance in the IWS variable, and the overall model was significant $\chi^2(4) = 60.13$; p>0.001). However, given there was some convergence between VOTE and VOCALISE (chapter 5, section 5.8.1), it was important to check for collinearity between these variables. Hence, a simple random effects regression model was also run, which included VOCALISE, occupational status and age as covariates, and IWS as the dependent variable. In this model, although there was an observable increase in coefficient β for VOCALISE in the absence of VOTE, there was also a significant effect of VOCALISE on IWS: Coef. β: 21.34; S.E: 5.91; p>0.001; 95% C.I.: 9.76 to

32.93. This suggests that any correlation between VOTE and VOCALISE is not sufficient to use one measure in place of the other.

Post hoc, the predicted mean value for IWS T0 for staff with lower VOCALISE T0 scores was 161.31 (S.E. 5.80; 95% C.I. 149.93 to172.68); and for staff with higher VOCALISE T0 scores was 173.89 (S.E. 5.66; 95% C.I. 162.79 to185.00). Therefore, those with more negative perceptions of work satisfaction also had more negative perceptions of barriers to change.

Did perceptions of barriers to change affect perceptions of burnout (model 7.14)?
Hypothesis: staff with negative perceptions of barriers to change will also experience burnout (MBI T0).

Table 7.19: The baseline effects of perceptions of barriers to change and ward climate on burnout, controlling for occupational seniority and age (model 7.14)

Variables	Coef. β	S.E	P	95% CI	
				UL	LL
Barriers to change: VOCALISE T0 (positive/negative perceptions)	7.01	3.89	0.07	-0.61	14.63
Ward climate: VOTE T0 (positive/negative perceptions)	10.16	3.58	0.005	3.15	17.18
Occupational status: manager/direct care staff	3.47	4.33	0.42	-5.01	11.96
Age: -39years/40+	-7.95	3.43	0.02	-14.66	-1.23
_cons	60.85	3.78	0.00	53.44	68.26

(N=91; 8 wards, obs per ward min= 1, average=11.4, max=17)
(Sigma_u = 0.34, sigma_e=16.11, rho=0)

Model 7.14 shows that perceptions of the ward climate (VOTE T0) significantly affected burnout (MBI T0). Staff perceptions of barriers to change (VOCALISE T0) did not significantly affect burnout (MBI T0) but a trend was observed. Further, burnout increased as staff age decreased. The predictors included in the model represent 23% of the variance in the MBI variable, and the overall model was significant $\chi^2(4) = 26.30$ $p>0.001$).

Post hoc, the predicted mean burnout score for staff with more positive perceptions of barriers to change was 62.97 (S.E. 2.71; 95% C.I. 57.66 - 68.28). For staff with more negative perceptions of barriers to change, the predicted mean burnout score was 69.98 (S.E. 2.42; 95% C.I. 65.24 - 74.72). Therefore, those with higher levels of burnout also had more negative perceptions of barriers to change.

Staff with more positive perceptions of ward climate had a predicted mean burnout score of 61.80 (S.E. 2.43; 95% C.I: 57.03 to 66.56). Staff with negative perceptions of ward climate had a predicted mean burnout score of 71.96 (S.E: 2.46; 95% C.I: 67.14 to 76.78).

7.5 Summary and discussion

The conceptual model described at the beginning of this chapter, which drew from the literature, was partially supported by these findings (that used the baseline data from DOORWAYS). There were also some surprising results that diverged from the literature and from the qualitative findings reported in chapter 4, which will be discussed.

7.5.1 **Staff characteristics**

The literature describes differences in the perceptions of employees (from a variety of workplaces including non-healthcare settings), depending on their occupational status and age (Benn, Burnett et al 2009, Vroom and Pahl 1971, Bantel and Jackson 1989). At baseline, age predicted staff perceptions of barriers to change, and the effect of occupational status showed a trend (model 6.1). Occupational status also predicted confidence and powerlessness. More senior staff felt less powerless (model 7.2) more confident (model 7.3), than those in more junior positions. Age also predicted demotivation (model 7.4), because younger staff were more demotivated than older staff.

There is also evidence to suggest that length of employment, ethnicity, gender and education may affect perceptions of barriers to change. Aarons (2004) has shown that employed health professionals are more negative towards innovation than interns; and that staff with higher educational attainment respond more positively to change. Studies that examine any effects of racial and gender composition on innovation are unusual; however, Baugh and Graen (1997) have shown that teams (in a U.S. state regulatory agency) with homogeneous characteristics view their performance more positively than diverse teams. In contrast, Van der Vegt and Janssen (2003) found that diversity positively affected innovative behaviour (in the financial services sector, in the Netherlands). In chapter 4, there was qualitative evidence that length of employment decreased flexibility towards change, given this theme was referenced 27 times and mentioned by staff of all grades. However, at baseline, there was no significant effect of length of employment on perceptions of barriers to change. This might be explained because the variable for 'length of employment' was defined by how long staff had worked on their current ward, and not by how long staff had been in the NHS, which may have given a different result. Neither was there any effect of education on staff perceptions of barriers to change detected in these data. This may be due to the distribution of academic qualifications throughout the nursing workforce. In this sample, around half of the healthcare assistants (48%) and staff qualified at band five level (56%) were degree educated and educational attainment was not recorded above degree level. By comparison, the sample in the U.S. study (Aarons 2004) comprised participants from the healthcare sector, not just nursing; with N=213 participants educated to Masters level or above, compared to N=97 participants at graduate level, and only 10 below graduate level.

In the Trust under study, the nursing teams were very diverse ethnically, but predominantly female. However, there was no effect of ethnicity or gender on staff perceptions of barriers to change at baseline. This may suggest that diversity and gender are not strong components of nursing culture towards innovation.

7.5.2 **Ward climate indicators**

Whilst the relationship between perceptions of barriers to change and violence has not been explored explicitly in previous research, other studies have shown a negative impact of violence on morale in mental health wards (McGeorge, Lelliott et al. 2001, Kindy, Petersen et al. 2005, Currid 2009). Indeed, after controlling for occupational seniority and age, high numbers of incidents significantly affected perceptions of barriers to change (model 7.5). Staff associated high numbers of incidents with decreased confidence (model 7.10) and there was also a trend towards increased demotivation (model 7.11). However, since there was limited variation in the incident data, these findings should be interpreted with caution.

In the NHS, there are currently stringent controls over spending which have resulted in staffing shortages (Addicott, Maguire et al. 2015). Consequently, adverse effects in staff perceptions were expected. In this study, there was a significant and negative effect of higher numbers of temporary staff on baseline perceptions of barriers to change. However, although significant, this effect was slight, according to the beta coefficient (0.18), which was even smaller for the subscales. At T0, confidence was significantly reduced in wards with high numbers of temporary staff. There was also a strong trend whereby high numbers of temporary staff worsened baseline perceptions of demotivation and weaker evidence to suggest an increase in powerlessness towards changes.

Close observations are usually actuated by nursing staff because staff perceive a risk of service user initiated harm to self or others. In these baseline data, close observations were used most frequently on wards with female only patients and there was a trend suggesting that this type of close monitoring, which may be viewed as invasive, negatively affected staff perceptions of barriers to change. However, more data will be required to substantiate these exploratory findings.

The literature also suggests that the demand for in-patient beds in the mental health services is high (MHAC, 2005). Indeed, in the qualitative data, staff described bed pressure as a barrier to change and suggested that patient movement increased workload. However, there was no significant impact of patient turnover on staff perceptions of barriers to change at baseline.

Since a focus on risk management may detract staff attention from innovation (Brennan, Flood et al. (2006), the impact of high numbers of detained service users on perceptions of barriers to change was examined. However, there was no significant finding.

7.5.3 **VOTE: Perceptions of ward climate**

Although there are currently few studies which link ward climate with how staff view changes, there is some evidence that a challenging ward climate could hinder innovation (Bowers, Simpson et al. 2003, Cleary 2004, Brennan, Flood et al. 2006). This study provides evidence of a significant effect of perceptions of ward climate on perceptions of barriers to change.

7.5.4 How did perceptions of barriers to change and ward climate affect work satisfaction and burnout?

Since previous studies describe a negative impact of ward climate on ward satisfaction and burnout (Severinsson and Hummelvoll 2001, Cleary 2004, Jenkins and Elliott 2004, Fourie, McDonald et al. 2005, Ward and Cowman 2007, Hanrahan, Aiken et al. 2010, Seed, Torkelson et al. 2010), it was expected that perceptions of ward climate would also adversely affect perceptions of barriers to change. Indeed, in model 7.12, after controlling for occupational seniority and age, VOTE T0, a subjective measure of the ward climate, predicted perceptions of barriers to change (VOCALISE T0). When included together in model 7.13, perceptions of ward climate and barriers to change both predicted work satisfaction (IWS T0). Model 7.14 showed a trend whereby perceptions of barriers to change affected burnout (MBI T0). There was also a significant effect of perceptions of ward climate on burnout, and younger staff were more burnt out than older staff. These findings indicate the potential for wider adverse effects as a result of innovation and this will be further explored in chapter 8, when the additional impact of change disruption is applied.

7.5.5 A note on the analysis method

The utility of the random effects models was variable, given there were some variables with insufficient variance (e.g. incidents). This meant that some models (e.g. model 7.5) produced a value of 0 for sigma_u and rho, and in these models the results represent standard regression.
The random effects model takes sample differences into account by computing an average 'ward effect'. On a mental health ward, where there are generally low numbers of senior staff (bands six and seven) it would be optimal to have a high level of representation from this group. In this sample, some wards had limited representation from senior staff. Indeed, ward six includes one band seven staff member. Inferences from these results to the larger population should therefore be drawn with caution, and clearly more work is needed in this area.

Another general issue with the use of linear models is that they consider the dependent variable as an outcome of the explanatory variables. However, there may be additional complexities to consider in the relationships between staff perceptions of barriers to change, ward climate, work satisfaction and burnout on mental health wards. There may also be reciprocal relationships between these variables. These relationships and suitable methods to explore them will therefore be discussed in more detail in chapter 8.

Which findings appear reliable?

The significant effects of age and temporary staff on perceptions of barriers to change are based on more complete data and these findings can therefore be interpreted with greater confidence. Additionally, the models which use staff perceptions measures across the whole sample appear to yield robust findings. These include models 7.12-7.14 which examined the effects of ward climate (VOTE) on perceptions of barriers to change (VOCALISE), and these variables together on work satisfaction and burnout.

This chapter examined the baseline predictors of perceptions of barriers to change. In the next chapter, potential negative effects of change over time on perceptions of barriers to change will be explored. Since ward climate may be better represented by the VOTE measure than by the ward climate indicators presented in this chapter, there will also be further exploration of the ward climate construct. Given the exploratory nature of these studies, there may be some utility in comparing the effects of both ward climate indicators and VOTE on perceptions of barriers to change longitudinally, using a more sophisticated method of analysis.

Chapter 8 : How did a period of innovation influence staff perceptions of barriers to change?

8.1 Introduction

To understand why planned, top down changes are challenging in acute ward settings, this study will examine the impact of the DOORWAYS intervention (described in chapter 6, section 6.2) on staff perceptions 12 months after its implementation.

Lewin (1951) and Schein (1996) have suggested that intensive programmes of change, such as DOORWAYS, bring disruption before improvements which may impact negatively on staff perceptions. Although the DOORWAYS programme aimed to improve how staff and service users perceived the overall ward climate, the implementation phase was expected to decrease workplace stability thereby worsening staff perceptions in the intervention group in the short/medium term. VOCALISE, a measure of staff perceptions of barriers to change, is intended to capture some of these potential negative effects on staff. In this chapter, the following hypothesis will be explored:

- At follow up, those who participated in the intervention (and were exposed to an intense period of change), will have more negative perceptions of barriers to change than those in the control group.

The VOCALISE measure also provides data, which describes how staff respond to change. Specific factors of perceived powerlessness, confidence and demotivation, which are the subscales of VOCALISE, may show differential effects over time and so they require independent assessment. A second hypothesis will therefore be tested:

- Following a period of intense change, those who participated in the intervention will have worse perceptions of powerlessness or confidence or demotivation than those on the control wards.

Investigating how change over time influences VOCALISE is an important preliminary step towards understanding whether innovation related disruption worsens staff perceptions of barriers to change.

Contextual factors within the workforce or workplace may also be key to understanding what impedes innovation. Both in the literature and in the baseline analyses, age and occupational status affected staff views on change (Vroom and Pahl 1971; Bantel and Jackson 1989; Benn, Burnett et al 2009). In this chapter, whether these effects remain at follow-up will be explored. In addition, stressful ward climate effects (Bowers, Simpson et al. 2003, Cleary 2004, Brennan, Flood et al. 2006) were confirmed using VOTE (as a proxy measure for ward climate). Ward level variables, signalling an unstable ward atmosphere, also significantly and negatively predicted

perceptions of barriers to change. Therefore, any negative effect of baseline ward climate on perceptions of barriers to change at follow-up will be explored.

The literature does not yet report any direct link between perceptions of barriers to change, work satisfaction and burnout in mental health wards. However, a study conducted in the U.S found that openness towards organisational change improved job satisfaction (Wanberg & Banas, 2000); and increased commitment towards change lowered burnout in four Swedish neonatal units (Wallin et al, 2006). Any negative consequences of change related disruption may therefore be reflected more widely in staff experiences of work satisfaction and burnout. This will be explored according to a third hypothesis:

- Within the context of the DOORWAYS intervention, negative perceptions of barriers to change (VOCALISE) at baseline will worsen perceptions of work satisfaction (IWS) and burnout (MBI) at follow-up.

8.1.1 How will this study enhance our understanding of change in acute mental health ward settings?

If the baseline predictors of barriers to change also have a negative impact at follow-up, this will provide evidence of likely problems in advance of implementing any future changes in acute wards. These variables might then inform targeted interventions to improve ward climate during the implementation phases of change. Since it is quite likely that the period of uncertainty or turmoil brought about by planned change (represented by the DOORWAYS intervention) could persist over time; this study may further our understanding of whether strategies to support innovation will need to continue for longer than usually expected in these settings.

8.2 Methods

The methods for this study are described in chapter 6 together with the rationale for model selection and will not be explained again here. In this chapter, six models will be presented. The outcomes of the analyses are:

- Model 8.1: VOCALISE T1 (Staff Perceptions of Barriers to Change).
- Models 8.2-8.4: Powerlessness T1, Confidence T1, Demotivation T1 (all subscales of VOCALISE).
- Model 8.5: IWS T1 (Index of Work Satisfaction) (Stamps and Piedmonte 1986).
- Model 8.6: MBI T1 (Maslach Burnout Inventory)(Maslach, Jackson et al. 1996).

The scores of all staff perception measures (VOCALISE, VOTE, IWS and MBI) were reverse scored so that high scores indicated more negative (and therefore worse) perceptions.

The models will include the following covariates are:

- Model 8.1: Intervention effect, Time, Ward, (ward climate: VOTE T0 or incidents and temporary staff), Age T0, Occupational status T0.

- Models 8.2-8.4: Intervention effect, Time, Ward, (ward climate: VOTE T0), Age T0, Occupational status T0.
- Models 8.5-8.6: Intervention effect, Time, VOCALISE T0, Ward, Age T0, Occupational status T0.

As occupational status, age and ward climate were found to predict perceptions of barriers to change at T0, models 8.1-8.6 will adjust for these variables.

8.2.1 Considerations for model interpretation

There are some points to note before describing the results which will help the interpretation of unstructured multivariate linear models. The interpretation of these models differs from the interpretation of linear models. For this reason, an expanded and detailed interpretation of model 8.1 will be provided as an example of these differences. In subsequent models, only main effects and significant findings will be detailed.

1. The ***intervention effect*** variable estimates the difference in score between groups at T1, adjusted for covariates. If coded to provide estimates for those who participated in the intervention wards, it assumes an interaction between group and time because this variable comprises 2 groups: 1) those who were in the control group at T1 and 2) everybody else (baseline sample and those who did receive the intervention at T1). When the coding is changed to provide estimates for those in the control group there are then 2 groups: 1) those who were in the intervention group at T1 and 2) everybody else (baseline sample and those who were in the control group at T1).

Clearly, reversing the coding does not alter how the estimates for this variable are interpreted because the difference between the two groups remains the same for both versions of coding. This is explained in more detail in the interpretation of ***intervention effect*** (model 8.1) later in this chapter. In this chapter, all main models (tables 8.2, 8.6, 8.14 and 8.16) will present estimates for the intervention group.

The ***intervention effect*** variable enforces a zero treatment effect at baseline. This is necessary so that the post-treatment measures and baseline (as correlated outcomes) can be used simultaneously to adjust for missingness; and to meet the assumptions of an RCT that both groups have similar scores at baseline.

2. The models do not measure a main effect of time because an interaction between ***time*** and the ***intervention effect*** variable is assumed. The ***time*** variable allows an estimate of the adjusted change in the outcome between baseline and T1. By changing the coding in the ***intervention effect*** variable, the estimates for the ***time*** variable are also restricted to the control group only or the intervention group only. And, because there is an interaction between group and time in the intervention effect variable, the effects within each treatment group are expected to be different over time.

3. The constant represents the estimated mean outcome score. As the models adjust for ***age*** and ***occupational status***, this score is based on ***age*** =0 (younger staff) and ***occupational status*** =0 (direct care). The baseline category is ward 1, which was also the ward with the most negative staff perceptions of barriers to change. The constant is the same whether the ***intervention effect*** variable is coded to represent those who did, or those who did not receive the intervention because of the coding (which enforced a 0 treatment effect at baseline in order to meet the assumptions of an RCT).

4. The estimates for ***ward, age*** and ***occupational status*** are the mean outcome score between the different categories of ***ward, age*** and ***occupational status*** across time, given the assumption that both arms of the trial started with the same scores at T0. Therefore, for example, the estimate for ***age*** is the mean score difference between the two categories of ***age***, adjusting for ***ward, occupational status, treatment effect, time***, and the ***intervention effect*** that forces the mean scores to be the same at baseline. The estimates for ***ward, age*** and ***occupational status*** are across time, and are not changed by recoding the variable for ***intervention effect***.

5. To aid interpretation of significant estimates, the mean scores of those included in the repeated measures sample will be compared to the mean scores of those included in the full dataset. This will also provide a sense check for the more complicated model results. Figures showing the mean scores of the repeated measures sample will be compared to mean VOCALISE scores post hoc, which were calculated using the post estimation command *lincom,* in Stata 11. This command computes point estimates, standard errors, p-values, and confidence intervals for the linear combination. These are based on the model which adjusts for baseline differences and therefore both groups have the same baseline score.

It is important to note that the estimates for ***intervention effect*** and ***time*** are stratified estimates based on reference categories being 0, (or 1 for ward), adjusted for all other included covariates. In each model, this means that the estimate for the intervention effect will be true if time=0, age =0 and occupational status =0.

Variables	**Baseline categories**	**Other categories**
Time	Baseline = 0	Follow up = 1
Age	Younger = 0	Older = 1
Occupational Status	Direct care staff = 0	Senior staff = 1

It will therefore be necessary to recode each model so that study group is 1 and to specify categories of time=1, age=1 and occupational status =1, using *lincom* to see predicted mean outcome scores at follow up for those in the control group who are older or more senior in occupation.

6. Interactions were considered only if there were significant effects. To explore any impact of ***ward (climate), age*** or ***occupational status*** on worsening perceptions over time would require an interaction between each of these variables and the ***time*** variable. To explore whether the

outcome scores were different by group (intervention or control) required the models to be coded to show the estimates for each group separately, accompanied by post hoc explanation using *lincom*.

8.3 Results

8.3.1 Sample characteristics

Table 8.1: Characteristics of the repeated measures sample (i.e. all participants who completed measures on two occasions, at T0 and T1)

Demographic Characteristics										
Ward		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total (%)**
Number of staff		4	10	3	3	12	3	9	10	54 (100)
STAFF GRADE	**Band 3**	1	3	2	0	4	1	4	3	18 (33)
	Band 5	2	4	0	0	8	1	3	3	21 (39)
	Band 6	1	2	0	3	0	0	1	3	10 (19)
	Band 7	0	1	1	0	0	1	1	1	5 (9)
ETHNICITY	**WB/ Other**	1	1	1	2	2	1	2	3	13 (24)
	BME	3	9	2	1	10	2	7	6	40 (74)
	.	0	0	0	0	0	0	0	1	1 (2)
GENDER	**M**	0	6	3	0	9	0	4	8	24 (44)
	F	4	4	0	3	3	3	5	2	30 (56)
AGE	**Mean (Scott Max/ Min**	40.75 (12.55) 57/29	39.4 (7.41) 50/29	31.33 (5.51) 35/25	44.67 (5.78) 48/38	42.67 (9.20) 62/28	34.67 (12.66) 49/25	44.88 (6.69) 56/37	42.29 (8.62) 52/27	41.12 (8.73) 62/25

Note: WB (White British); BME (Black minority ethnic group); M (male), F (female)' . (missing)

Wards differed in terms of the number of participants and the range of grades represented (table 8.1). At baseline, 125 nursing staff had completed measures for the DOORWAYS programme. Post treatment, there were 179 staff in the trial in total, with 54 repeat participants who had taken

part at both time points; and 54 participants who were new to the study. All repeat participants remained on the same ward throughout.

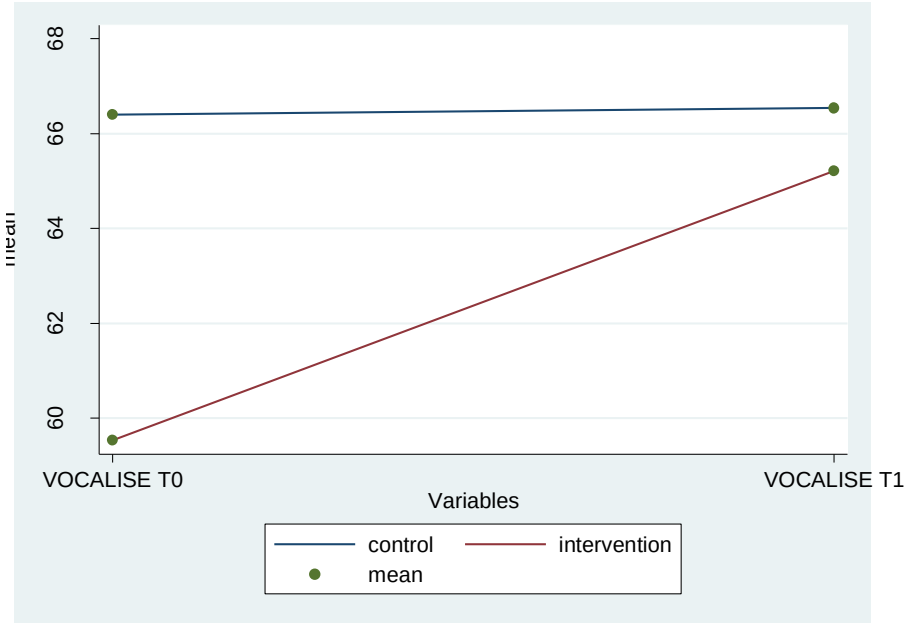
8.3.2 Did the DOORWAYS intervention (i.e. an experience of change) worsen staff perceptions of barriers to change?

Hypothesis

Those who participated in the intervention (and were exposed to an intense period of change), will have more negative perceptions of barriers to change) than those in the control group.

Initially, mean total VOCALISE scores for the repeat participants, were plotted at both time points in both groups (intervention and control). The data revealed that staff perceptions of barriers to change grew comparatively worse over time in the intervention group. In the control group, there was little change. Notably, the intervention group also had more positive perceptions at the outset, and these remained more positive at T1 (figure 8.1), although the margin between the two groups is small.

Figure 8.1: Mean VOCALISE scores at T0 and T1 in the control and intervention groups (repeat participants)



8.3.3 Model 8.1: exploring the potential negative effect of the intervention on staff perceptions of barriers to change, including covariates time, age, occupational status, ward and ward climate

As shown in figure 8.2, the outcome in model 8.1 was perceptions of barriers to change, which was indicated by the total scores of the VOCALISE measure. There were two main predictors of interest: the intervention effect and time. The covariates included ward, occupational status and age, which had a significant effect on VOCALISE at baseline. As a strong association between ward climate (VOTE) and perceptions of barriers to change (VOCALISE) was described in chapter 7, any negative effects of baseline ward climate on perceptions of barriers to change at follow up, were also explored. The model was tested first using ward as a proxy variable forward climate,

then including VOTE T0 (also used here as a proxy for ward climate, according to staff perceptions), and finally, using ward climate indicators incidents and temporary staff. Best fit was tested using AIC (which was described in chapter 6, section 6.10.1). The pathways tested are detailed in figure 8.2.

Figure 8.2: The potential negative intervention effect on staff perceptions of barriers to change when including covariates time, age, occupational status, ward and ward climate

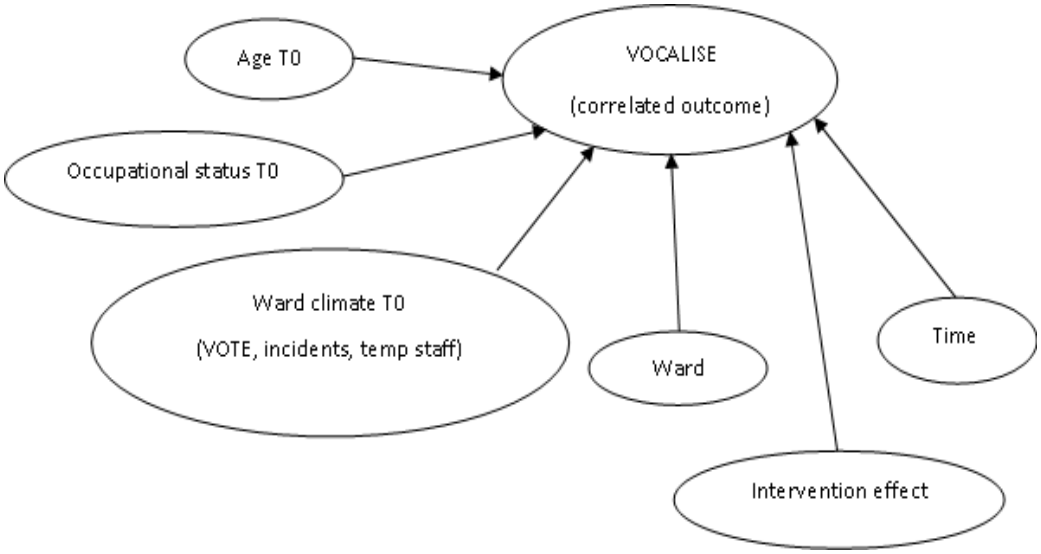


Table 8.2: Unstructured multivariate linear model (N=109, 8 wards) exploring whether participation in the intervention affected staff perceptions of barriers to change, adjusting for time, ward, baseline age and occupational status

Variables			Coef. β	S.E.	P Value	95%C.I.	
						LL	UL
Intervention effect			***-5.89***	***2.71***	***0.03***	***-11.19***	***-0.59***
Time			***6.03***	***1.91***	***0.002***	***2.29***	***9.77***
Ward	CTRL	Ward 2	-0.87	4.01	0.83	-8.73	6.98
	INT	***Ward 3***	***-8.84***	***4.07***	***0.03***	***-16.82***	***-0.85***
	INT	***Ward 4***	***-9.69***	***4.77***	***0.04***	***-19.04***	***-0.34***
	INT	***Ward 5***	***-11.41***	***3.68***	***0.002***	***-18.63***	***-4.20***
	CTRL	***Ward 6***	***-10.06***	***4.25***	***0.02***	***-18.40***	***-1.73***
	CTRL	Ward 7	-6.97	3.81	0.07	-14.43	0.49
	INT	Ward 8	-6.46	4.01	0.11	-14.32	1.40
Age: -39years/40+			-3.71	2.13	0.08	-7.88	0.46
Occupational status: manager/direct care staff			***-5.46***	***2.63***	***0.04***	***-10.61***	***-0.31***
_cons			71.35	2.94	0.001	65.59	77.12

Overall this model was significant ($\chi 2\,(11) = 33.75$; $p>0.001$), with an AIC score of 1116.297. This provides a useful baseline against which subsequent models will be compared.

Intervention effect

In this model, the constant is the predicted mean score at baseline, if study group = 0 (control) and time is 0 and all other covariates = 0 (or 1 for ward). The constant is the same for both the control and intervention groups, because a zero treatment effect is enforced at baseline.

Perceptions of barriers to change were significantly higher (and therefore more negative) in the intervention group than the control group at T1, after adjusting for all other covariates. At T1, the estimate for the intervention effect variable shows that the predicted mean score in the control group was 5.89 less than the predicted mean score in the intervention group.

This interpretation was not affected by reversing the coding. When the model was recoded to show the results for the control group, the adjusted change in score at T1 was significant (Coef. 5.89; S.E: 2.71; p=0.03; 95%C.I: 0.59 to 11.19) and the control group had lower and more positive perceptions of barriers to change at T1.

Time

The two groups responded differently to change over time. There was evidence (p=0.002) of a change (adjusted for all other included covariates) in the estimated mean outcome score between baseline and T1, in the intervention group. Over time, the scores in the intervention group became significantly worse because they increased by 6.03 points. The predicted mean outcome score in the intervention group at T1 was (77.38; 95%C.I: 70.54 to 84.23). There was no significant change over time in the control group (Coef: 0.14; S.E: 1.92; p=0.94; 95%C.I: -3.61 to 3.91), if the model was rerun, changing the coding. The predicted mean outcome score in the control group at T1 was (71.49; 95%C.I: 64.83to 78.15), showing little change from the baseline score. This is consistent with figure 8.1, which shows that perceptions worsened in the intervention group and remained stable in control group.

Covariates

The evidence suggesting an impact of age on perceptions of barriers to change was weak across time (p=0.08). This means that the impact of age was weak at baseline and also at follow up.

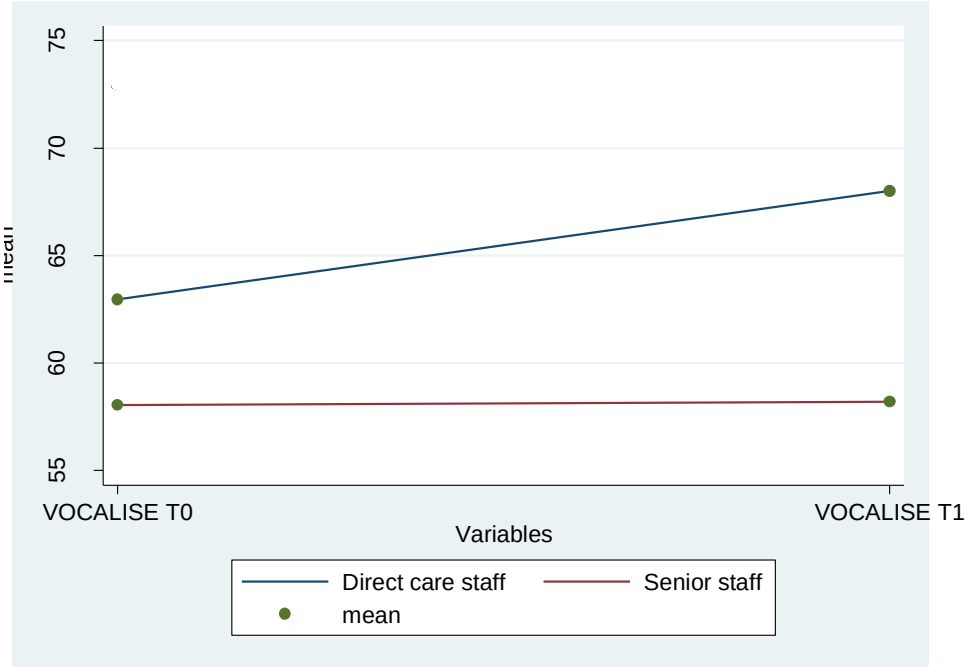
Occupational Status significantly affected staff perceptions of barriers to change across time (p=0.04), after adjusting for all other predictors. Post hoc, the mean predicted perceptions of barriers to change for those in direct care positions were more negative than those in more senior positions.

Table 8.3: Predicted mean estimates for staff perceptions of barriers to change according to occupational status

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	71.35 (65.59 to 77.12)	65.89 (58.57 to 73.21)
Control group	**1**	72.10 (65.32 to 78.88)	64.43 (55.56 to 73.31)
Intervention group	**1**	77.38 (70.54 to 84.23)	71.92 (63.71 to 80.14)

This finding reflects the scores from the repeated measures sample, which also showed that direct care staff had worse perceptions of barriers to change (figure 8.3).

Figure 8.3: Unadjusted mean VOCALISE scores at T0 and T1 for direct care staff and senior staff (repeat participants)



This trend for direct care staff to experience barriers to change more negatively than more senior staff is in line with earlier findings. In addition, worsening perceptions of barriers to change in the direct care group were significantly linked to participation in the intervention, because there was a significant interaction between occupational status and time (Coef: -7.67; S.E: 3.71; p=0.04; 95% C.I: -14.94 to -0.40). Taking this interaction into consideration, the mean adjusted outcome scores were:

Table 8.4: Mean adjusted estimates for staff perceptions of barriers to change according to occupational status*time

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	71.31 (65.55 to 77.07)	66.35 (58.96 to 73.74)
Control group	**1**	72.10 (65.32 to 78.88)	64.43 (55.56 to 73.31)
Intervention group	**1**	77.97 (71.00 to 84.95)	70.31 (61.24 to 79.37)

These figures show that after adjusting for baseline differences, perceptions of barriers to change worsened across both levels of occupational status. The largest, negative shift in scores was visible amongst direct care staff in the intervention group.

The estimate for ward shows that there was a direct effect of certain wards on the outcome across time. The staff on ward 1, which was the reference category and a control ward, had the most negative perceptions as indicated by the constant (71.35). Staff on intervention wards 3, 4 and 5

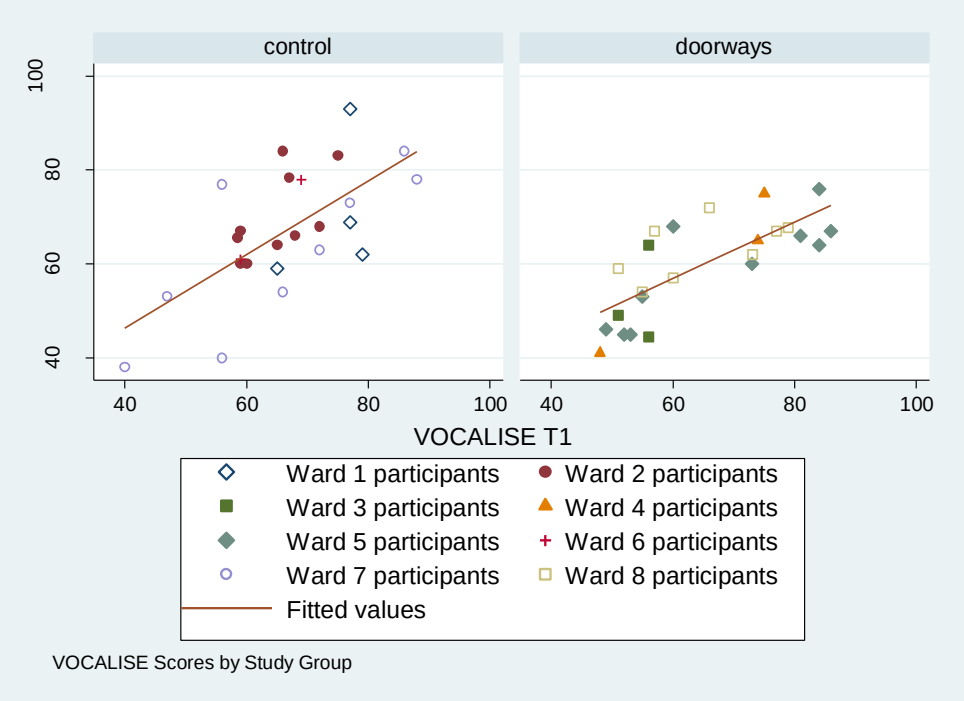
had significantly better perceptions of barriers to change than those on ward 1 at follow up, which was also shown in the adjusted mean outcome scores that were computed post hoc (table 8.5):

Table 8.5: Mean estimates for staff perceptions of barriers to change by ward

Ward	Estimated Mean VOCALISE score at T0 (95%C.I.)	Estimated Mean VOCALISE score at T1 (95%C.I.)
1 (CTRL)	71.35 (65.59 to 77.12)	71.49 (64.83 to 78.15)
2 (CTRL)	70.48 (64.51 to 76.45)	70.62 (64.19 to 77 05)
6 (CTRL)	***61.29 (54.75 to 67.82)***	***61.43 (53.96 to 68.90)***
7 (CTRL)	64.38 (58.71 to 70.05)	64.52 (58.09 to 70.95)
3 (INT)	***62.51 (56.63 to 68.40)***	***68.55 (61.78 to 75.31)***
4 (INT)	***61.66 (53.34 to 69.98)***	***67.69 (58.85 to 76.54)***
5 (INT)	***59.94 (54.55 to 65.32)***	***65.97 (59.92 to 72.01)***
8 (INT)	64.89 (58.48 to 71.30)	70.92 (63.87 to 77.97)

The results in bold indicate a significant effect. More change occurred in the intervention group than the control group. However, as there is an overlap in the confidence intervals between T0 and T1, as well as similarity between groups, changes in perceptions over time were small. Neither was the difference between wards very large. It is therefore not clear from the findings above whether there was any direct link between ward climate, and changes to perceptions of barriers to change over time as a result of the intervention. Including an interaction between site and time was not feasible within this model because of the statistical power limitations. Score variations by ward may have been the result of differences in individual participant's scores. This is illustrated in figure 8.4, which plots each repeat participant's score according to their ward. As already mentioned, there were clear limitations in the sample, with only 1 participant fully completing the VOCALISE measure at both T0 and T1 on ward 6.

Figure 8.4: Unadjusted mean VOCALISE scores at T0 and T1 for each ward by study group (repeat participants)



Given the significant association between perceptions of ward climate and barriers to change at baseline, it is however, plausible that score variations according to the VOCALISE measure were linked to ward climate. This is explored in more detail in the next section.

8.3.4 Did baseline ward climate influence perceptions of barriers to change over time?

The findings above, which included ward as a proxy measure for ward climate, suggest that ward climate may play a role in how staff perceive barriers to change (Cleary 2004, Brennan, Flood et al. 2006, Totman, Hundt et al. 2011). The ward variable usefully provides a global overview of outcome scores by ward and highlighted score variation. However, the ward variable cannot provide much detail to explain how ward climate might impact perceptions of barriers to change, or the intervention.

On this basis, the VOTE measure, as a more sensitive proxy for ward climate was added to the model to explore its effects. Given this is a measure of individual level perceptions, there was also more variation by ward, and more detailed items to explain how ward climate affected perceptions of barriers to change.

Table 8.6: Unstructured multivariate linear model (N=106, 8 wards), showing whether participation in the intervention affected perceptions of barriers to change, adjusting for time, ward, ward climate, baseline age and occupational status, including VOTE

Variables			Coef. β	S.E.	P Value	95%C.I.	
						LL	UL
Intervention effect			-3.97	2.71	0.14	-9.29	1.35
Time			***5.57***	***1.93***	***0.004***	***1.79***	***9.35***
Ward	CTRL	Ward 2	-0.80	3.00	0.79	-6.68	5.09
	INT	Ward 3	-2.27	3.22	0.48	-8.58	4.04
	INT	Ward 4	0.32	3.79	0.93	-7.11	7.76
	INT	Ward 5	-2.81	2.99	0.35	-8.67	3.06
	CTRL	Ward 6	-4.33	3.39	0.20	-10.98	2.32
	CTRL	Ward 7	-1.47	2.94	0.62	-7.23	4.30
	INT	Ward 8	-1.87	3.15	0.55	-8.05	4.31
Age: -39years/40+			-1.93	1.63	0.24	-5.14	1.27
Occupational status: manager/direct care staff			-2.93	2.04	0.15	-6.92	1.07
Ward climate: VOTE T0 (positive/negative perceptions)			***0.63***	***0.07***	***<0.001***	***0.49***	***0.77***
_cons			20.33	6.38	0.001	7.83	32.83

Including a VOTE T0 score for each ward was not feasible in this model, because this type of model will only accept integers and computing a mean VOTE score per ward produced non-integer values. As the scores were close together (table 7.16, p.180), there was no advantage in rounding up scores and decreasing the sensitivity of the measure. Further, as already discussed, more data would be required for mean scores to be meaningfully representative.

The overall model statistics were (χ^2 (12) = 122.50; p>0.001). Ward climate (VOTE T0) had a highly significant effect on staff perceptions of barriers to change in both the intervention and control group. Those with negative perceptions of ward climate had significantly worse perceptions of barriers to change in the intervention group than the control group. Perceptions of barriers to change also varied when comparing the intervention group to the control group, depending on baseline perceptions of ward climate scores, indicated by a significant interaction between time and VOTE T0 (Coef β: 10.87; S.E: 2.99; p=0.001; 95% C.I: 5.01 to 16.72). This interaction was explored using a dichotomised VOTE T0 variable in the model. This was split at the median to produce two staff groups were those with either positive (high scores) or negative perceptions of ward climate (low scores).

At baseline, both those in the intervention and control groups had the same scores (table 8.7). At follow up, perceptions of barriers to change altered differently across time. This was linked to whether perceptions of ward climate were positive or negative and to study group.

Table 8.7: Mean adjusted estimates for staff perceptions of barriers to change according to whether baseline perceptions of ward climate were high (negative) or low (positive)

Study group (95% C.I.)	VOCALISE T1 (positive VOTE T0 group)	VOCALISE T1 (negative VOTE T0 group)
Baseline	62.30; (56.42 to 68.18)	73.57; (68.50 to 78.65)
Control	63.17 (55.88 to 70.46)	74.04 (67.77 to 80.31)
Intervention	67.89 (60.68 to 75.11)	78.76 (71.86 to 85.66)

Irrespective of whether staff perceived their ward climate more/less favourably at the start of the trial, all those who participated in the intervention became more negative. In addition, the impact of perceptions of ward climate on perceptions of barriers to change was more negative in the intervention group.

When including VOTE T0 the AIC score was 1038.21 whereas, when it was excluded the AIC score was 1116.30 (shown in table 8.2). As a lower AIC score denotes a better model fit, this suggests that that the model has a better fit when VOTE T0 is included. However, since there are some similar items in both the VOTE and the VOCALISE measures, including VOTE T0 may be over fitting the model. Given high numbers of incidents and temporary staff significantly predicted baseline perceptions of barriers to change, these variables were also explored at follow up (Appendix G.1, Table G.1). There was a significant effect of both incidents (Coef β :8.38; S.E: 2.96; p=0.005; 95% C.I: 2.58 to 14.18) and temporary staff (Coef β:0.15; S.E:0.06; p=0.02; 95%C.I: 0.02 to 0.27).

8.3.5 **Summary**

Intervention effect and time: After controlling for baseline differences, the intervention group had more negative perceptions than those in the control group at follow up. There was also a significant worsening in scores over time in the intervention group, probably because these staff experienced more intense change and disturbance.

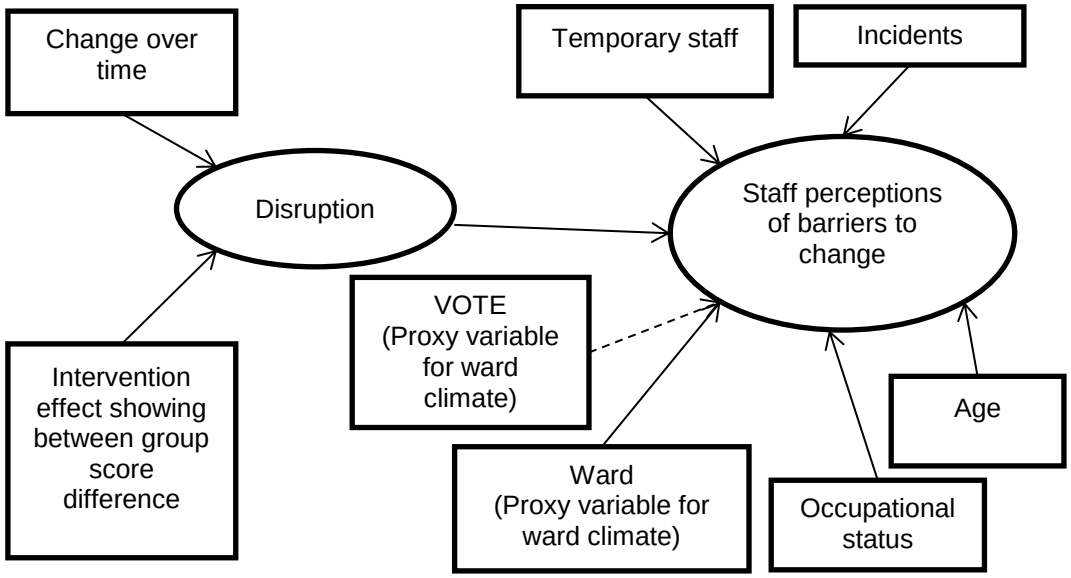
Ward (climate): Staff perceptions of barriers to change varied by ward. Three out of the four intervention wards had significantly more positive perceptions of barriers to change across time than the reference ward, which was a control ward. This highlights the relevance of the clinical setting when delivering changes. Ward climate (VOTE T0) also significantly influenced perceptions of barriers to change at follow-up in both groups which highlights a strong link between how staff perceive ward climate and barriers to change. A more challenging (negative) ward climate at baseline produced worse (more negative) perceptions of barriers to change, in the intervention group at follow up.

There was also some evidence that both the ward climate and the intervention worsened perceptions of barriers to change at follow up because the impact of ward climate on perceptions of barriers to change was greater in the intervention group than the control group in relation to the baseline scores. In addition, there was evidence that incidents and high numbers of temporary staff worsened perceptions of barriers to change (Appendix G.1). However, given some ward level data (in particular the variable for incidents) has limited variation, and the ward climate

variable (VOTE) does not allow any representation of each individual ward, further models will use the ward variable as a proxy for ward climate. Although this will provide only information to show whether wards one to seven differ from ward eight (the reference ward, which was a control), the theoretical standpoint that staff on wards cannot have independent perceptions (as detailed in chapter 5, section 5.3), will be maintained.

Occupational status and age: In both groups, direct care staff had more negative perceptions of barriers to change than more senior staff. These findings are in line with the results of chapter 7. After adjusting for baseline differences, staff in the intervention group experienced more negative change than the control group. Although age had no significant impact on perceptions of barriers to change, there was weak evidence to suggest that younger staff had worse perceptions of barriers to change than their older colleagues. Figure 8.5 graphically represents the significant pathways found.

Figure 8.5: The influence of change related disruption and the wider ward context on perceptions **of barriers to change**



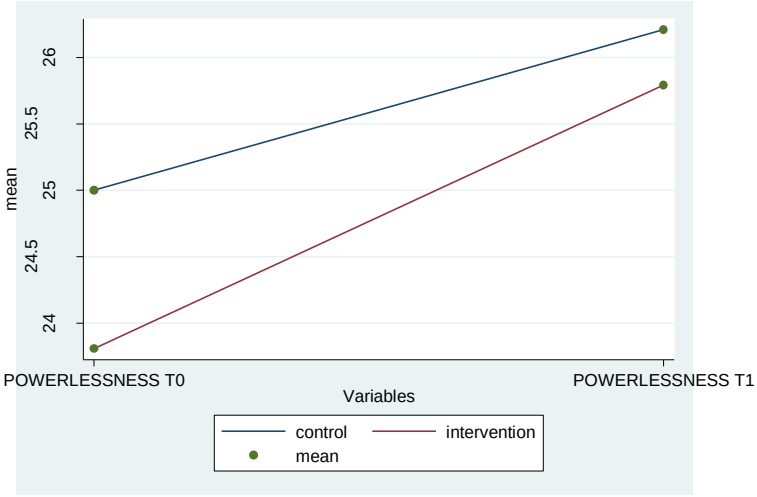
These data suggest that change brings disruption. The next step in this chapter will be to test whether this was also true of the subscales of VOCALISE (powerlessness, confidence, and demotivation). It may be that the overall construct of *staff perceptions of barriers to change* comprises different facets. Investigating the subscales may illuminate whether staff are affected differently during changes, which may be linked to exposure to the intervention or different elements of ward climate or staff characteristics.

8.3.6 Did participation in the intervention affect perceptions of powerlessness, confidence, and demotivation at follow up?

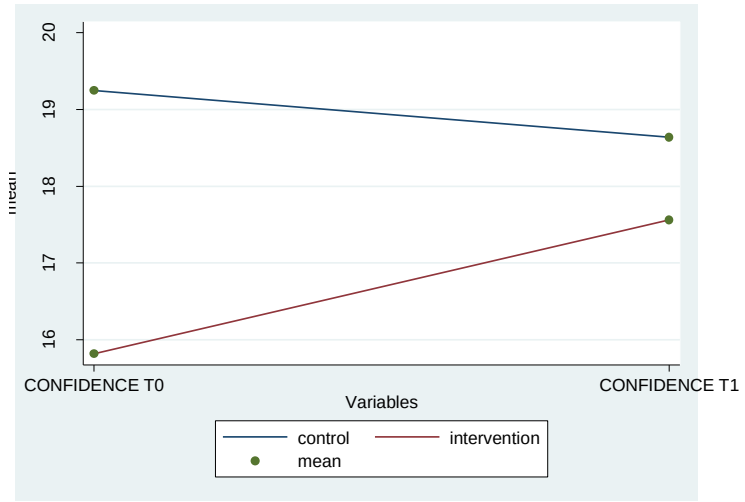
Using the subscales of powerlessness, confidence and demotivation as correlated outcomes, the analyses followed the same process as above. Initially, the mean subscale scores of those in the repeated measures sample were plotted to provide an overview at baseline and follow up.

Figure 8.6: Mean VOCALISE subscale scores at T0 and T1 in the control and intervention groups (repeat participants)

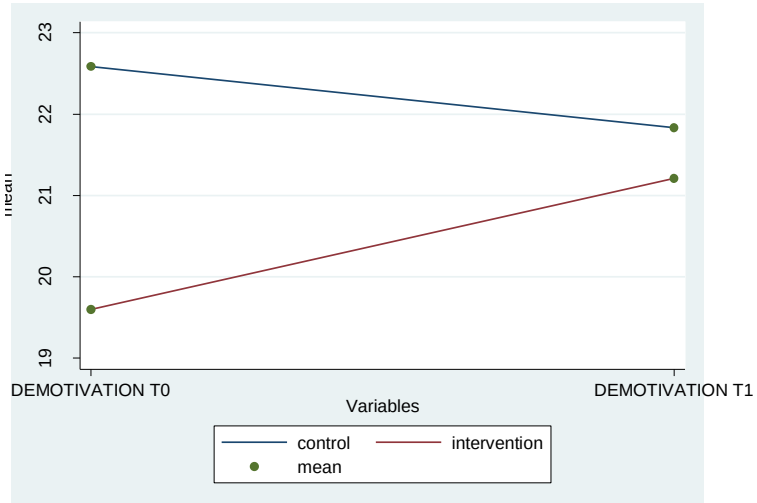
8.6a) Powerlessness



8.6b) Confidence



8.6c) Demotivation



As was the case when examining the total scores of the repeat participants, perceptions worsened more in the intervention group than in the control group. According to figures 8.6a), b) and c), the amount of negative change appears greatest in the powerlessness subscale in the intervention group, although powerlessness increased in both groups. In the intervention group, according to staff perceptions it seems that confidence declined and demotivation worsened, whilst the perceptions of those in the control group improved slightly. The actual score differences between the intervention group and control group were slight on all subscales.

Hypothesis

Three unstructured multivariate linear models were therefore built to investigate these findings according to the following hypothesis:

- Following a period of intense change, those who participated in the intervention will have worse perceptions of powerlessness or confidence or demotivation than those on the control wards.

8.3.7 **Model 8.2: Did powerlessness increase as a result of participation in the intervention?**

This model included *perceptions of powerlessness* as the correlated outcome and was overall significant (χ^2 (11) = 24.89; p=0.009). The full results of the model are presented in Appendix G.2.1.

Intervention effect and time

There was no significant difference in powerlessness scores when comparing the intervention group to the control group at T1 (Coef β: -0.53; S.E: 1.25; p=0.67; 95% C.I: -2.99 to 1.92). The adjusted change in powerlessness between baseline and T1 was significant in the intervention group (Coef β: 1.92; S.E: 0.89; p=0.03; 95% C.I: 0.18 to 3.67) but not in the control group (Coef β: 0.53; S.E: 1.25; p=0.67; 95% C.I: -1.92 to 2.99). This reflects the data shown in figure 8.6a), where perceptions of powerlessness in the intervention group started off better, but grew comparatively worse over time than those in the control group.

Covariates

Occupational status significantly affected perceptions of powerlessness (Coef β:-3.95; S.E: 1.27; p=0.002; 95%C.I: -6.43 to -1.47), across time. As shown previously, perceptions of powerlessness were worse in the direct care group at T0 and T1 than they were in the senior staff group. Post hoc, the estimated mean powerlessness scores at T0 and T1 are shown below for both groups.

Table 8.8: Mean adjusted estimates for staff perceptions of powerlessness according to occupational status

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	26.92 (24.14 to 29.71)	22.97 (19.43 to 26.51)
Control group	**1**	28.31 (25.15 to 31.46)	24.36 (20.55 to 28.17)
Intervention group	**1**	28.84 (25.57 to 32.11)	24.89 (20.93 to 28.85)

In addition, there was a significant interaction between occupational status and time (Coef β: 5.55; S.E: 1.72; p=0.001; 95%C.I: -8.92 to -2.18). Table 8.9 shows that powerlessness changed differently over time, across the two categories of occupational status. Powerlessness scores worsened in the direct care group, but there was little score change in the senior staff group. This also reflects the data for those with repeated measures (see Appendix G.2.1, figure G.1; p.264).

Table 8.9: Mean adjusted estimates for staff perceptions of powerlessness according to occupational status*time

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	26.89 (24.11 to 29.67)	23.38 (19.80 to 26.96)
Control group	**1**	29.23 (25.93 to 32.53)	23.68 (19.36 to 28.10)
Intervention group	**1**	28.77 (25.57 to 31.97)	23.22 (19.08 to 27.36)

8.3.8 Model 8.3: Did confidence decrease as a result of participation in the intervention?

This model was significant overall, (χ^2 (11) = 33.13; p<0.001) (see Appendix G.2.2 for full results).

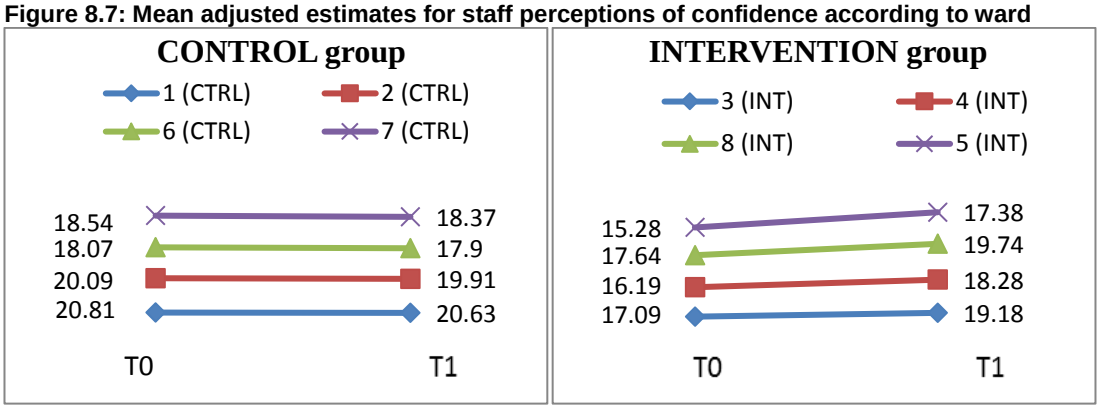
Intervention effect and time

The adjusted difference in confidence scores at T1 was not significant, when comparing the intervention group to the control group. The adjusted change in perceptions of confidence between baseline and T1 in the intervention group was significant (Coef β: 2.09; S.E: 0.97; p=0.03; 95% C.I: 0.19 to 3.99). When the model was re-run, coded to show an estimate for the control group, this was not significant (Coef β: -0.17; S.E: 1.01; p=0.86; 95%C.I: -2.15 to 1.80). In other words, only those in the intervention group had significantly worsening perceptions of confidence over time. Figure 8.6b) also supports this finding.

Covariates

There was some variation in how staff on different wards perceived confidence at follow up. On wards 3, 4, 5 and 8, which were all intervention wards, staff had significantly better perceptions of confidence than those on ward 1, where staff had the least confidence towards changes (indicated by the constant: 20.81). Estimates were computed post hoc to describe the difference in ward scores at T0 and T1, adjusted for the covariates included in the model and for baseline differences (figure 8.7).

Figure 8.7: Mean adjusted estimates for staff perceptions of confidence according to ward



The mean score difference between senior and direct care staff across time was significant (Coef β: -2.94; S.E: 1.01; p=0.004; 95%C.I: -4.92 to -0.96). Direct care staff had less confidence than those in more senior roles. This effect is illustrated in table 8.10 because those in the direct care group expressed less confidence towards changes than those in more senior positions.

Table 8.10: Mean adjusted estimates for staff perceptions of confidence according to occupational seniority

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	20.81 (18.56 to 23.06)	17.87 (15.02 to 20.72)
Control group	**1**	20.64 (17.80 to 23.47)	17.70 (14.38 to 21.01)
Intervention group	**1**	22.91 (19.98 to 25.84)	19.96 (16.56 to 23.37)

In addition, there was a significant interaction between occupational status and time (Coef β: -4.19, S.E: 1.63; p=0.01; 95% C.I: -7.39 to -1.00). Table 8.11 shows that perceptions of confidence changed differently over time depending on whether staff were in the direct care or senior staff group. Furthermore, confidence grew worse over time in the intervention group by comparison to the control group.

Table 8.11: Mean adjusted estimates for staff perceptions of confidence according to occupational status*time

Study group (95% C.I.)	Time	Direct care staff	Senior staff
Both groups	**0**	20.78 (18.54 to 23.03)	18.16 (15.27 to 21.06)
Control group	**1**	21.01 (18.10 to 23.91)	16.81 (13.02 to 20.61)
Intervention group	1	23.29 (20.27 to 26.32)	19.10 (15.26 to 22.93)

8.3.9 **Model 8.4: Did demotivation increase as a result of participation in the intervention?**

This model was significant overall, (χ^2 (11) = 21.56; p=0.03) (Appendix G.2.3, table G.4, p.264).

Intervention effect and time

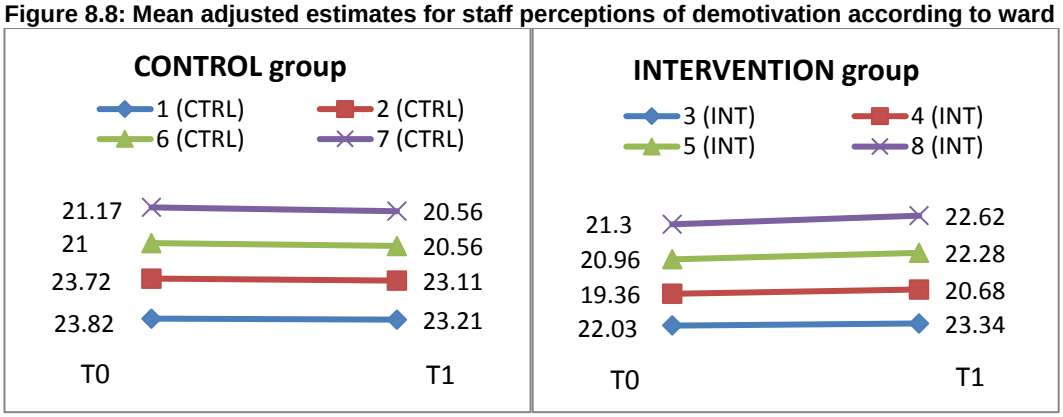
In this model some adjusted difference in demotivation scores at T1 was observed, providing weak evidence (Coef β: 1.32; S.E: 0.72; p=0.07; 95%C.I:-0.10 to 2.73) that demotivation scores were worse at T1 in the intervention group after controlling for baseline differences. There was also weak evidence (Coef β:-1.93; S.E:1.02; p=0.06; 95% C.I: -3.93 to 0.07) of adjusted change across time in the demotivation scores in the intervention group. When the model was re-run to

show the estimates for the control group, there was no significant change in demotivation across time (Coef β: -0.61; S.E: 0.72; p=0.39; 95%C.I: -2.03 to 0.80). This pattern of results mirrors figure 8.6c).

Covariates

There was limited score variation by ward, according to staff perceptions of demotivation. Wards 4 and 5 were significantly more motivated than the reference ward, which had the greatest perceived demotivation (indicated by the constant: 23.82). Post hoc, the adjusted estimates are shown below, which describe differences in ward scores at T0 and T1 suggested that scores were lower and therefore better on wards 4 and 5 than ward 1.

Figure 8.8: Mean adjusted estimates for staff perceptions of demotivation according to ward



Across the two time points, older staff were significantly more motivated (Coef β: -1.78; S.E: 0.79; p=0.03; 95%C.I: -3.34 to -0.23) than those who were younger, adjusting for other covariates and baseline differences. Predicted mean outcome scores for demotivation computed post hoc illustrate these slight score variations (table 8.12); and also correspond with the scores of those with repeated measures (Appendix G.2.4, figure G.4, p.264).

Table 8.12: Mean adjusted estimates for staff perceptions of demotivation according to age

Study group (95% C.I.)	Time	Younger staff	Older staff
Both groups	**0**	23.82 (21.65 to 26.00)	22.04 (19.81 to 24.27)
Control group	**1**	23.21 (20.78 to 25.64)	21.43 (18.96 to 23.89)
Intervention group	**1**	25.14 (22.57 to 27.71)	23.36 (20.70 to 26.01)

There was also a significant interaction of age and time on demotivation, showing a difference in how older and younger staff perceived demotivation. Further, that staff who participated in the intervention became comparatively more demotivated.

Table 8.13: Mean adjusted estimates for staff perceptions of demotivation according to age

Study group (95% C.I.)	Time	Younger staff	Older staff
Both groups	**0**	23.77 (21.58 to 25.96)	22.13 (19.86 to 24.39)
Control group	**1**	23.35 (20.82 to 25.87)	21.21 (18.60 to 23.82)
Intervention group	**1**	25.34 (22.64 to 28.05)	23.21 (20.47 to 25.94)

8.3.10 **Summary (models 8.2-8.4)**

The results suggest that over time, perceptions of powerlessness and confidence worsened significantly; with some tentative evidence suggesting that demotivation may also have increased. These effects were visible in the intervention group only, after adjusting for covariates and enforcing a zero treatment effect at baseline. There was little change in the perceptions of the control group over time. This shows support for hypothesis two and, according to these data, it is reasonable to suggest that the disruption brought about by periods of change affected perceptions of powerlessness, confidence and demotivation.

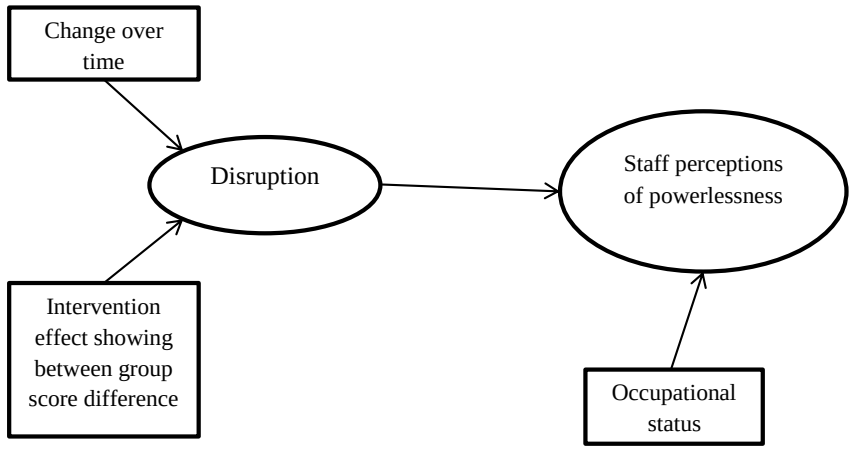
Occupational status significantly affected both perceptions of powerlessness and confidence. Nurses in direct care positions had more negative perceptions of both powerlessness and confidence than those in more senior positions. Across time, staff perceived powerlessness worsened more in the direct care group than the senior staff group. Staff confidence towards changes worsened more in the intervention group than the control group.

Age significantly affected perceptions of demotivation because younger staff were more demotivated; and across time, younger staff grew more demotivated than older staff.

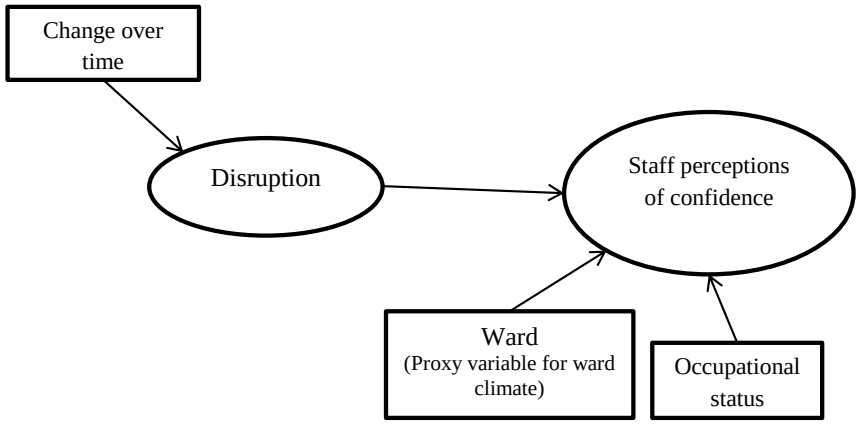
Although the ward variable does not provide specific information about the effect of ward on perceptions of barriers to change over time, it is useful to note that perceptions of confidence towards changes and demotivation varied according to ward. In line with the repeated measures data, at baseline and follow up, staff in the intervention wards (3, 4, 5 & 6) had significantly more confidence than the reference ward, which was a control ward, and which had the most negative score. Perceptions of demotivation were also significantly better on wards 4 and 5 when compared to the most negative reference ward. The significant pathways are presented in figure 8.9 (below).

Figure 8.9: The influence of change related disruption and the wider ward context on perceptions of powerlessness, confidence and demotivation

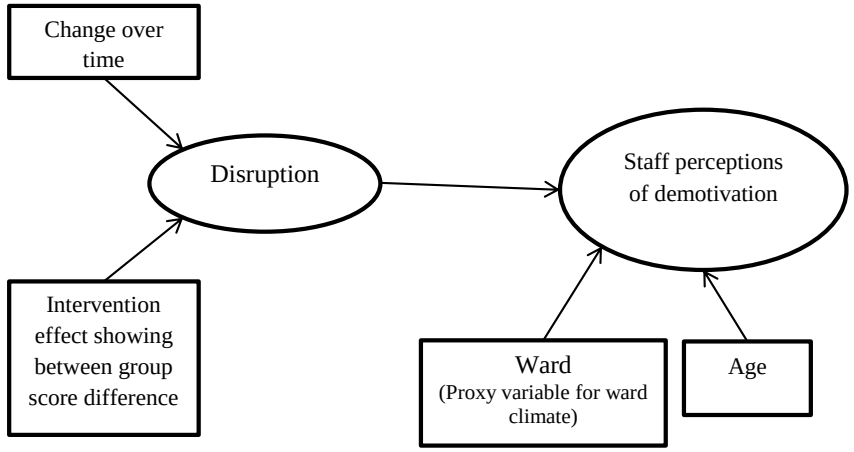
Powerlessness



Confidence



Demotivation



8.3.11 Within the context of the DOORWAYS intervention, did staff perceptions of barriers to change at baseline influence attitudes towards work satisfaction and burnout at the one-year follow-up?

In the literature, decreased work satisfaction and increased burnout are described as outcomes of a stressful ward environment (Wanberg and Banas 2000, Cleary 2004, Jenkins and Elliott 2004, Martin, Jones et al. 2005, Brennan, Flood et al. 2006, Hanrahan, Aiken et al. 2010, Laker, Rose et al. 2012). Although perceptions of barriers to change, work satisfaction and burnout represent known elements of the acute ward working experience from the perspective of staff, their associations are not yet adequately described in the literature.

To investigate this further, the unstructured multivariate linear model was repeated with a measure of work satisfaction (Index of work satisfaction (IWS): Stamps and Piedmonte (1986) and then of burnout (Maslach burnout inventory (MBI): Maslach, Jackson et al. (1996) as the correlated outcome. This allowed an investigation of the effect of perceptions of barriers to change on both outcomes over time, within the context of the DOORWAYS programme. As well as the VOCALISE measure, both the IWS and MBI measures were scored in this study so that high scores were negative.

Hypothesis

- Within the context of the DOORWAYS intervention, negative perceptions of barriers to change (VOCALISE) at baseline will worsen perceptions of work satisfaction (IWS) and burnout (MBI) at follow-up.

8.3.12 Models 8.5 and 8.6: Did attitudes towards work satisfaction and burnout change during the study period?

Following the same procedure carried out previously, unadjusted mean scores were graphed for repeat participants only.

Figure 8.10: Unadjusted mean work satisfaction and burnout scores at baseline and T1 in the control and intervention groups (repeat participants)

8.10a) Work satisfaction *8.10b) Burnout*

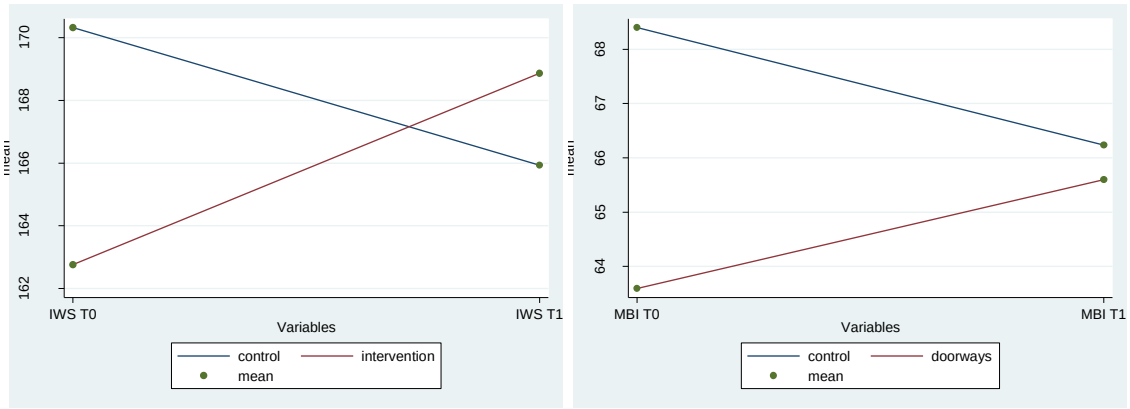


Figure 8.10a) shows that staff in the intervention group expressed less work satisfaction than those in the control group at follow-up. Work satisfaction decreased over time in the intervention

group, whilst the perceptions of those in the control group improved. Figure 8.10b) suggests that at T1, burnout scores were better in the intervention group than the control group. Over time, there was a marginal improvement in burnout scores in the control group, whilst in the intervention group burnout slightly increased.

8.3.13 **Model 8.5: Work satisfaction**

As shown in figure 8.11, the correlated outcome was work satisfaction (in model 8.5) and burnout (in model 8.6). There were six predictors of interest including intervention effect, time, VOCALISE (perceptions of barriers to change), ward, occupational status and age. VOCALISE, occupational status and age were baseline measures.

Figure 8.11: Potential negative effect of staff perceptions of barriers to change (VOCALISE) on work satisfaction or burnout, including covariates time, intervention effect, age, occupational status, and ward

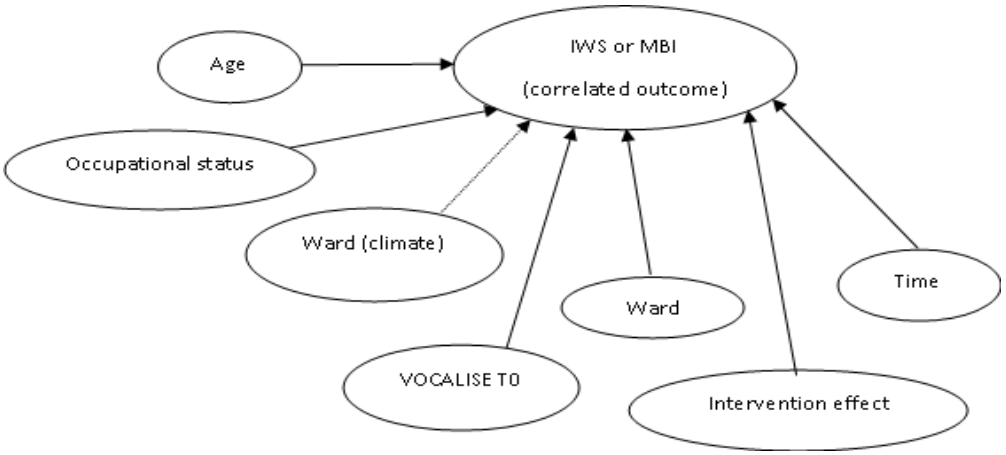


Table 8.14: Unstructured multivariate linear model (N=145, 8 wards), exploring whether baseline perceptions of barriers to change affected work satisfaction at T1 within the context of the DOORWAYS intervention and including ward, age and occupational status (model 8.5)

Variables			Coef. B	S.E.	P Value	95%C.I.	
						LL	UL
Intervention effect			***-13.89***	***6.78***	***0.04***	***-27.19***	***-0.60***
Time			8.06	4.61	0.08	-0.96	17.09
Barriers to change: VOCALISE T0 (positive/negative perceptions)			***1.49***	***0.20***	***<0.001***	***1.10***	***1.89***
Ward	CTRL	Ward 2	-5.76	8.36	0.49	-22.14	10.62
	INT	Ward 3	-16.36	8.61	0.06	-33.24	0.52
	INT	Ward 4	-11.06	9.93	0.27	-30.51	8.39
	INT	***Ward 5***	***-18.73***	***8.05***	***0.02***	***-34.52***	***-2.95***
	CTRL	Ward 6	-15.77	9.39	0.09	-34.18	2.64
	CTRL	Ward 7	-12.85	8.10	0.11	-28.72	3.01
	INT	***Ward 8***	***-25.15***	***8.34***	***0.003***	***-41.51***	***-8.80***
Age: -39years/40+			3.18	4.46	0.48	-5.55	11.91
Occupational status (manager/direct care staff)			-5.39	5.38	0.31	-15.93	5.16
_cons			89.45	15.60	0.001	58.88	120.02

This model was significant (χ^2 (11) 30.10=; p<0.001), with an AIC score of 1300.97.

Intervention effect and time

This model shows evidence of a significant between group difference in work satisfaction scores, after adjusting for baseline work satisfaction scores and all other covariates. In this model, which shows the estimates for the intervention group, the coefficient (-13.89) indicates that perceptions of work satisfaction were worse in the intervention group than the control group at T1.

There was weak evidence of an adjusted change in the work satisfaction scores over time in the intervention group (p=0.08), whereby perceptions of work satisfaction worsened. This trend was also indicated in the repeated measures data (figure 8.10a). Figure 8.10a), which showed only a very slight improvement in unadjusted work satisfaction scores in the control group during the study period. This finding was supported when the model was recoded (Coef: 2.77; S.E: 5.05; p=0.58; 95%C.I: -12.68 to 7.14).

Perceptions of barriers to change (VOCALISE):

In both groups there was strong evidence that perceptions of barriers to change affected work satisfaction at baseline and also at follow up (p<0.001).

In addition, there was a significant interaction effect of baseline perceptions of barriers to change and time on work satisfaction (Coef β: 1.15; S.E: 0.38; p=0.002; 95% C.I: 0.41 to 1.89). Perceptions of work satisfaction changed differently over time depending on whether staff had positive perceptions of barriers to change (low scores on the VOCALISE measure), or negative perceptions of barriers to change (high scores), at baseline. This interaction was explored using a dichotomised VOCALISE variable in the model. This variable was split at the median to provide two staff groups were those with either positive scores (high) or negative scores (low). At baseline, both those in the control group and intervention group had the same scores (table 8.15). At follow up if those in the intervention group had more negative perceptions of barriers to change, perceptions of work satisfaction were also worse. Further, the impact of staff perceptions of barriers to change on work satisfaction was more negative in the intervention group than the control group.

Table 8.15: Mean adjusted estimates for staff perceptions of work satisfaction according to whether baseline perceptions of barriers to change scores were high (negative) or low (positive)

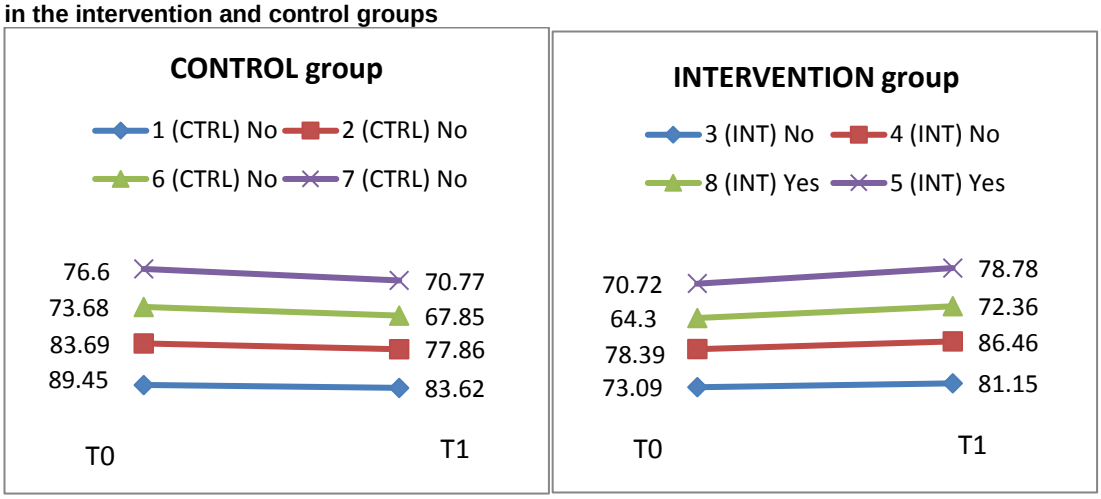
Study group (95% C.I)	Perceptions of work satisfaction at T1	
	Positive VOCALISE T0 scores	Negative VOCALISE T0 scores
Baseline	177.20 (160.97 to 193.43)	200.44 (186.09 to 214.79)
Control	173.44 (154.13 to 192.74)	196.43 (179.36 to 213.50)
Intervention	185.12 (165.84 to 204.40)	208.11 (190.20 to 226.03)

Covariates

There was some variation in score by ward, as wards 5 and 8, which were intervention wards, had significantly better work satisfaction across time than the reference group, which was the

most negative. Estimates were computed post hoc to describe the difference in ward scores for work satisfaction, adjusted for all covariates included in the model.

Figure 8.12: Mean adjusted estimates for staff perceptions of work satisfaction according to ward, in the intervention and control groups



8.3.14 **Model 8.6: Burnout**

The model was repeated with burnout (MBI) as the correlated outcome variable.

Table 8.16: Unstructured multivariate linear model (N=145, 8 wards), exploring whether baseline perceptions of barriers to change affected burnout at T1 within the context of the DOORWAYS intervention and controlling for ward, age and occupational status

Variables			Coef. β	S.E.	P Value	95%C.I.	
						LL	UL
Intervention effect			-0.34	3.49	0.92	-7.18	6.50
Time			2.56	2.57	0.32	-2.47	7.59
Barriers to change: VOCALISE T0 (positive/negative perceptions)			***0.65***	***0.16***	***<0.001***	***0.33***	***0.96***
Ward	CTRL	Ward 2	0.15	6.19	0.98	-11.99	12.29
	INT	Ward 3	1.10	6.52	0.87	-11.67	13.87
	INT	Ward 4	8.15	7.47	0.28	-6.49	22.79
	INT	Ward 5	6.57	6.03	0.28	-5.25	18.38
	CTRL	Ward 6	5.08	7.43	0.49	-9.48	19.63
	CTRL	Ward 7	7.39	6.06	0.22	-4.48	19.26
	INT	Ward 8	-3.51	6.27	0.58	-15.79	8.77
Age: -39years/40+			***-9.14***	***3.42***	***0.008***	***-15.84***	***-2.43***
Occupational status (manager/direct care staff)			4.93	4.11	0.23	-3.14	12.99
_cons			25.45	12.36	0.04	1.22	49.67

When comparing the AIC score for this model, which was 1147.718, to that of the previous model, which was 1300.97, it was notable that including burnout as the outcome produced a better model fit than including work satisfaction.

Intervention effect and time

There was no significant difference in burnout scores at T1 when comparing the intervention group to the control group. Neither was there any evidence of any adjusted change in score in the intervention group over time (p=0.92). This is in line with figure 8.10b) which indicated that any improvement in burnout scores between T0 and T1 was marginal in the intervention group (repeat participants). Nor did the model indicate any significant change to burnout scores over time in the control group (Coef: 2.22; SE: 2.36; p=0.35; CI: -2.42 to 6.86).

Perceptions of barriers to change (VOCALISE)

In both groups, there was evidence of a strong, positive relationship between how staff perceived barriers to change and burnout. In these data, this meant that if perceptions of barriers to change worsened, burnout increased. This was true at both baseline and at follow up.

Covariates

Staff who were older experienced significantly less burnout than those who were younger. Adjusted estimates were computed post hoc, which showed that younger staff were more burnt out than senior staff (table 8.17). This was true at both baseline and T1.

Table 8.17: Mean adjusted estimates for staff perceptions of burnout according to age

Study group	**Time**	**Younger staff**	**Older staff**
Both groups	**0**	25.44 (1.22 to 49.67)	16.31 (-7.21 to 39.83)
Control group	**1**	28.01 (3.23 to 52.77)	18.87 (-5.19 to 42.93)
Intervention group	1	27.66 (2.97 to 52.37)	18.53 (-5.48 to 42.55

This pattern of results was similar in repeated measures (see Appendix G.3, figure G.5, p. 264), which also showed that younger staff were more burnt out at baseline and T1.

8.3.15 **Summary**

Intervention and time effects

There was a significant between group difference in work satisfaction scores when comparing the intervention group and the control group at T1. Those in the intervention group had more negative perceptions of work satisfaction at T1 than those in the control group. Participation in the intervention also worsened perceptions of work satisfaction in the intervention group over time.

Participation in the intervention did not affect burnout scores. Neither did burnout scores show significant change over time in either group.

Perceptions of barriers to change (VOCALISE)

In support of hypothesis three, there was a strong direct effect of baseline perceptions of barriers to change on work satisfaction and burnout at T1. Clearly, there is a significant relationship between how staff perceive barriers to change and work satisfaction/burnout.

Perceptions of work satisfaction were mainly affected by baseline perceptions of barriers to change. If staff had negative perceptions of barriers to change at baseline, perceptions of work satisfaction were also negative at follow up. Further, the negative impact of perceptions of barriers to change on work satisfaction was greater in the intervention group than the control group.

Ward

Staff perceptions of work satisfaction showed limited variation by ward. Wards 5 and 8 had significantly better scores than the reference ward (which was the most negative).

Age

Age significantly affected burnout across the whole sample. Younger staff were more burnt out than those in more senior positions at baseline and this remained true across time.

8.4 Discussion

8.4.1 Were staff perceptions of barriers to change affected by participation in the intervention?

In the first model, which explored the impact of the intervention on perceptions of barriers to change across time, the intervention group had more negative perceptions of barriers to change than the control group. Further, over time, the disruption brought by DOORWAYS worsened staff perceptions of barriers to change more in the intervention group than the control group.

This finding provides support for the theories of Lewin (1951) and Schein (1996), who suggested that change brings disruption that can create resistance amongst staff. Schein (1996) also proposed that resistance would perpetuate, if the provision of psychological safety was poor.

Psychological safety is the provision of supportive, inclusive systems, which protect against uncertainty when changes are introduced, by promoting open, non-judgmental staff interactions. Schein (1996) suggested that managers should provide a psychologically safe and supportive learning environment for staff, to foster innovation. If staff have negative perceptions of barriers to change, this may reflect a lack of psychological safety.

The idea that psychological safety was lacking in these mental health wards, was also supported through the analysis of VOCALISE subscales. Evidence of detrimental psychological and emotional impact as a result of changes comes from the results of powerlessness increasing and confidence decreasing in the intervention group, over the study period. In the control group, any changes to staff perceptions of powerlessness and confidence were not significant. There was also weak evidence that staff who participated in the intervention became more demotivated, whilst the perceptions of those in the control group remained comparatively stable.

The composition and purpose of mental health wards makes them challenging places to work. It may be difficult for managers to achieve consistent psychological safety to sustain the workforce when changes happen because features of ward climate, such as violence/incidents, the

emotional distress of service users, and risk management strategies are likely to inhibit any protective features of psychological safety when changes are implemented.

Given DOORWAYS was an externally devised change delivered in the form of a randomised controlled trial that was imposed at the ward level using a top down approach, it is perhaps unsurprising that staff responded negatively. DOORWAYS represents a specific type of change because it was a research study. However, the way that staff responded may be representative of how staff might respond to other, large-scale changes which are outside of their control. The nature of the change implies that greater involvement of staff at the outset may improve outcomes. However, as DOORWAYS wards were compared with wards delivering services as usual, there is no evidence that a different type of change or management strategy would have better outcomes. Future research might consider comparing two differing types of change to better inform how future change might be managed.

8.4.2 **Did ward climate worsen perceptions of barriers to change at follow-up?**

At follow up ward climate was explored in three ways because of a number of limitations in the available data.

First ward climate was represented as a categorical variable, ward, in the models. However, the model output only provided information on how a reference ward (a control ward which also had the most negative score) compared with other wards. This did not afford much insight into how ward climate impacts perceptions of barriers to change.

Therefore, a second analysis using the VOTE measure was conducted as a surrogate for ward climate. There was a strong, positive effect of baseline ward climate on perceptions of barriers to change. Furthermore, over the twelve-month time period, the detrimental impact of perceptions of ward climate on perceptions of barriers to change was worse in the intervention group. This provides evidence to support the idea that both ward climate and the intervention worsened perceptions of barriers to change across time, for those who were involved in the intervention.

Finally, two ward level variables which significantly affected perceptions of barriers to change at baseline were included. On wards with higher numbers of incidents and temporary staff at baseline, perceptions of barriers to change at follow up were worse than on wards with fewer incidents and temporary staff. These ward level data lacked variation and whilst these findings should be interpreted with caution, they add to a consistent picture that ward climate had a negative effect on perceptions of barriers to change.

The effect of ward climate on the subscales of VOCALISE was also explored, although interpreted with caution given that reliability of the subscales needs replication. At follow-up, there was some variation according to ward, in how staff perceived powerlessness, confidence and demotivation. Whist confidence and demotivation scores differed by ward at T1, perceptions of powerlessness were similar across wards. This may offer some additional explanation for how staff confidence,

demotivation and feelings of powerlessness might be tackled. Confidence and motivation are specific to the individuals working on wards and so might be best addressed using a team approach. Powerlessness, a variable comprising commonly cited ward practice issues (e.g. low staffing levels, excessive workload, too little time), appears to be a more generic problem which affected all intervention wards. It is quite likely that when changes are being implemented, the negative effects of an already under resourced environment are amplified. Given powerlessness grew worse over time as a result of participation in the intervention, an organisational level intervention which focuses on improving resources, information and support for staff, might be more appropriate than a ward level intervention.

Overall, these findings suggest that ward climate was an important predictor in these data. The relationship between perceptions of barriers to change and perceptions of ward climate on mental health wards has not previously been tested, so this finding extends the current evidence base. Although the VOTE measure did not allow an examination of the influence of ward climate on perceptions of barriers to change at the ward level, this limitation might be overcome in future research by including more wards in the sample.

8.4.3 Did perceptions of barriers to change worsen work satisfaction and burnout at follow-up?

Baseline perceptions of barriers to change had a strong, significant effect on work satisfaction and burnout at follow-up, in both the intervention and control groups. Therefore, if staff had negative perceptions of barriers to change before the period of implementation, then there were wider adverse impacts.

8.4.4 Did participation in the intervention worsen work satisfaction and burnout?

Over time, there was weak evidence that participation in the intervention worsened work satisfaction. Work satisfaction remained unchanged in the control group. This implies that change related disruption, also has negative impacts in wider aspects of the working life of nursing staff.

The key findings described in this chapter suggest that after 12 months of change related disruption staff were struggling to adjust. This was reflected both in worsened perceptions of barriers to change (which implies insufficient psychological safety), and also in decreased work satisfaction (which suggests that additional, negative consequences can result from innovation). As expected, the negative impact of ward climate on perceptions of barriers to change was worse across time, if staff participated in the intervention.

There was no negative impact on burnout as a result of participating in the intervention. However, given there is some evidence that burnout, (and in particular emotional exhaustion), is a problem on mental health wards (Maslach, Jackson et al. 1996, Prosser, Johnson et al. 1996, Tyson, Lambert et al. 2002, Hanrahan, Aiken et al. 2010, Johnson, Wood et al. 2011), this was surprising.

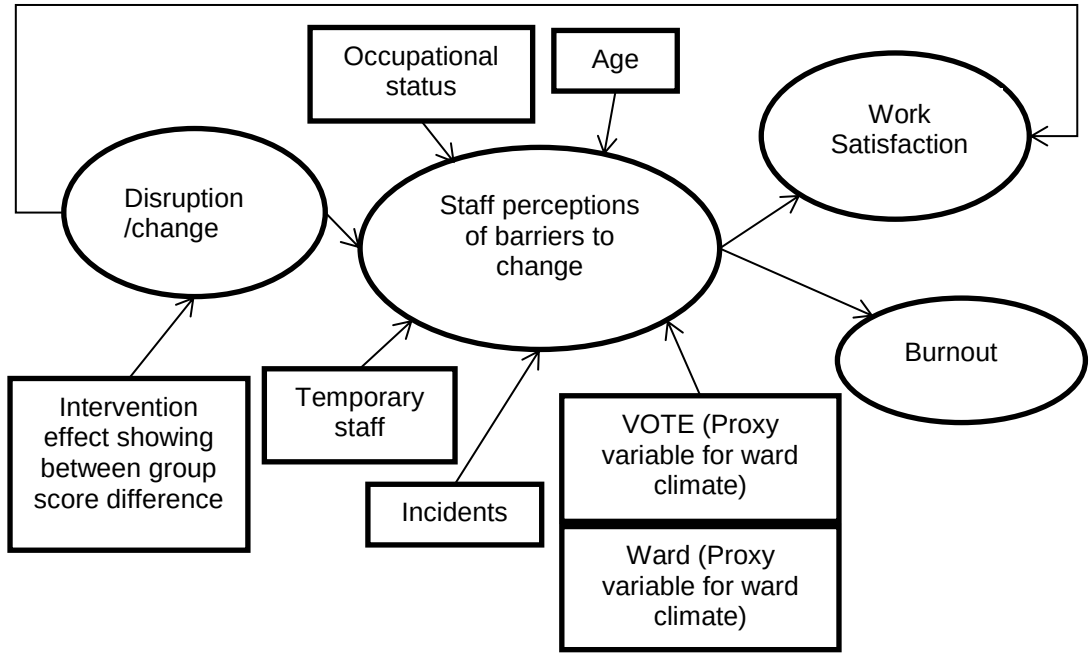
The Maslach Burnout Inventory measures personal accomplishment, emotional exhaustion and depersonalisation (cynicism) (Maslach, Jackson et al. 1996). As staff received skills training before the groups were implemented, this may have supressed the expected increase in burnout scores as a result of additional workload. Further, since the purpose of DOORWAYS was to improve the therapeutic environment (for patients and staff) by increasing the quality and frequency of staff/patient therapeutic interactions, these improvements may also have buffered against worsening scores, despite change disruption.

Other explanations may exist for the limited change in burnout scores at follow-up. There is already evidence that these two variables are correlated, since this was shown in a relatively recent, large-scale study of mental health wards (Johnson, Wood et al 2011). So it is not likely that there is no relationship between work satisfaction and burnout. In this study, at baseline and follow up, the correlation between burnout and work satisfaction was moderate ($r=0.44$; $p<0.001$; $N=110$) and ($r=0.3$; $p=0.005$; $N=88$).

Alternatively, there may simply be no impact of perceptions of barriers to change on burnout. However, although not conducted in a mental health setting, there is literature which shows that increased organisational commitment reduced burnout after one year (Wallin, Ewald et al. 2006). In this thesis, at baseline, there was weak evidence that perceptions of barriers to change increased burnout, after controlling for ward climate, age and occupational status. At follow-up, there was an increase in burnout on two intervention wards, little change on one ward, and a slight decrease in burnout on the other. Hence, the effect of 'no change' may be a product of the small number of wards that were included in the sample. Further research is clearly needed to investigate potential influences on burnout when changes happen.

To summarise, the longitudinal study findings, the relationships between the significant variables are presented below (figure 8.13) to explain how perceptions of barriers to change might be linked with other aspects of ward working life.

Figure 8.13: Summarising the findings of the longitudinal study: showing the relationships between significant variables in acute ward settings



In the next chapter, these findings will be discussed further, in the context of the literature, the qualitative data and the baseline findings, to draw conclusions and to consider the implications.

Chapter 9 : Conclusion: a discussion of findings and implications

9.1 Introduction

There were three broad motivations for this thesis. First, there is insufficient evidence to explain why it has been difficult to bring about improvements on acute mental health wards (Corry 2004, Evans, Rose et al. 2012), despite compelling theories that change brings disruption and causes uncertainty amongst the workforce, which may create resistance (Lewin 1951, Schein 1996, Aarons 2006).

Second, amidst concerns that the uptake of research evidence into healthcare practice is poor, attempts to address that have generally targeted service users through the adoption of new interventions. This means that the role of ward staff in innovation has not been adequately investigated. As the largest staff group working in the NHS, nurses can make a significant contribution to the development and running of the services. In mental health wards, nursing staff are responsible for co-ordinating most of the ward activities. They deliver daily care through extensive interactions with those who are admitted as service users. Their cooperation is essential if ward level system changes are required. Consequently, understanding how nursing staff perceive barriers to change is important (Brennan, Flood et al. 2006).

Third, studies of systems, implementation effects and workforce responses are likely to be complex, particularly in a large, multi-faceted organisation like the NHS. Innovation can be driven by numerous factors and operate at different levels. At the stage of implementation, changes to hospital practice are often experienced as stressful even though they may provide better care and easier performance of workplace duties (Greenhalgh, Robert et al. 2004).

This thesis used mixed methods in three main steps to make progress in relation to our understanding of each of these three broad issues. In stage one, perceptions of barriers to change were explored qualitatively to develop items for VOCALISE, a measure of perceptions of barriers to change (chapter 4). In stage two, VOCALISE was subjected to a number of psychometric tests (chapter 5). In stage three, VOCALISE was used in the field, to assess relationships between perceptions of barriers to change and other context variables (chapter 7); and then to gauge whether participation in an intervention (a period of change) had negative impacts on nursing staff (chapter 8) (Lewin 1951, Schein, 1996).

9.2 What were the key themes and findings?

At baseline, a cross sectional study was conducted. Likely predictors of perceptions of barriers to change were identified, based on the literature, which included staff characteristics and aspects of ward climate (chapter 7). Ward climate was considered because mental health wards are known to be volatile, a feature which may influence how staff perceive workplace instability. Work satisfaction and burnout were identified as important outcomes for staff wellbeing and potential

quality of care and were used to explore whether there are relationships between perceptions of barriers to change and wider adverse effects. At follow up, longitudinal impacts on perceptions of barriers to change as a result of implementing the intervention were assessed, as well as the potential effects on work satisfaction, burnout and any moderating effect of ward climate (chapter 8).

Discussion of each stage of this thesis has already been presented. However, there have been additional points of methodological interest and new findings at each stage. In this chapter, I focus on stakeholder involvement; perceptions of barriers to change as a gauge of psychological safety; the roles of occupational status, age and ward climate in shaping perceptions of barriers to change; and the relationship between perceptions of barriers to change and work satisfaction/burnout. As the subscale scores need further replication this final discussion will focus mainly on the total scores**.** It is also important to acknowledge that given this research was conducted in one trust, using data from nursing staff only, the results will need replication to clarify whether they are generalisable to the wider NHS.

9.3 Stakeholder involvement: was this approach beneficial?

VOCALISE was built using a novel method of measure development that emphasizes the participation of nursing staff as a stakeholder group within mental health settings. This approach drew from arguments made by service user researchers that greater involvement will produce measures of better quality, and with increased acceptability, because they are based on learning from real experiences. Further, that involvement might enable more relevant outcomes by opening up social as well as psychiatric or psychological dimensions (Tew 2002, Nilsen, Myrhaug et al. 2006, Evans, Rose et al. 2012). In this thesis, stakeholder involvement through direct participation in measure development was expected to improve the measure enhancing the feasibility, acceptability, reliability and validity. It was anticipated that this method of measure development might inform future implementation measures, as well as illuminating employee morale and motivation towards changes.

VOCALISE does successfully highlight the areas that are important to staff when it comes to describing the barriers to delivering change. The qualitative data revealed setting specific information describing the nursing culture towards changes, which was directly translated into items on the measure. There were many comments, which suggested that change management strategies in mental health wards were ineffective or absent, implying that psychological safety was poor. There were also real concerns about the impact of an unstable environment in addition to managing change and the uncertainty that accompanies it. This explains why the subscales of VOCALISE capture three types of resistance, which are summarised by the terms powerlessness, (under-) confidence and demotivation. These interesting details may have been missed using a non-participatory method.

As a result, VOCALISE can be used as a baseline measure to gauge staff perceptions of changes ahead of implementation. VOCALISE describes eighteen ‘barriers’ which were considered

important by the nursing staff who created them. VOCALISE items are both descriptive and evaluative, with items that fit a number of perspectives including psychological safety, implementation climate, implementation readiness and change appraisal. This variety is, at least in part, due to the participatory method used in development, since staff participants were more likely to speak candidly and at times, emotively because they felt comfortable to do so. In addition, VOCALISE also describes some psychological/emotional dimensions to how staff perceive changes, particularly via the subscales, which allow the longitudinal impact of changes over time to be studied, in terms of staff perceptions of confidence, demotivation and powerlessness. Staff also found VOCALISE to contain relevant items, to be acceptable, and easy to complete and understand.

9.3.1 Did stakeholder involvement influence engagement?

Although there is no numerical evidence to suggest that my sharing the same professional background as the participants was a positive influence during data collection, the emotional tone and content of the qualitative data was rich. This may, in part, be the result of reduced boundaries and shared experiences (Tew 2002, Nilsen, Myrhaug et al. 2006, Evans, Rose et al. 2012). The participatory model proved an effective mechanism of engagement into the qualitative research. One hundred percent of those who were asked to participate agreed to do so. The recruitment target for DOORWAYS was 50% and this was exceeded at baseline, (64% of available staff participated) and at T1 (62.5% participated). In a paper which examined predictors of successful recruitment in research studies, a high level of service user involvement was a significant influence (Ennis and Wykes 2013). However, meaningful involvement was required for this impact to be significant. This meant that collaboration was either jointly initiated between researchers and service users, or patient-initiated or the studies were patient-controlled. Future research might therefore consider whether meaningful involvement of other stakeholders, such as nurses, also improves research recruitment and retention.

9.4 Was there a negative impact of innovation on perceptions of barriers to change?

In brief, Schein (1996) argued that if psychological safety is present, the impacts of change and uncertainty, and the disruption that accompanies that, will be lessened. If staff perceive a high number of barriers to change, this might indicate an absence of the necessary psychological safety, which is required to deliver changes.

Over the initial 12-month study period, participation in DOORWAYS worsened staff perceptions of barriers to change (or how staff perceived psychological safety), more in the intervention group than the control group. Perceptions of powerlessness and confidence worsened significantly, with weaker evidence that demotivation increased. These findings seem to give further validation to Schein's (1996) model. However, it is likely that staff interpretations of psychological safety are context dependent. In future implementation science or improvements studies it may be important to consider staff generated insights into issues of psychological safety, ahead of changes, to enhance change management strategies.

It is also notable that there were staff with more positive perceptions of barriers to change, both at the outset and at follow-up. It may be that staff who are more optimistic at the outset, simply remain more positive throughout. This suggests that some staff are better at coping with changes than others. Equally, there are clearly a proportion of staff who find change difficult. Understanding more about the protective attributes of certain types of nursing staff would further our knowledge of how to support those who are less resilient to change.

9.5 The effects of staff characteristics and ward climate on perceptions of barriers to change

9.5.1 Staff characteristics

Occupational status

Senior staff in this set of thesis studies had more positive perceptions of barriers to change and may be coping better with those changes. This replicates the results in general healthcare settings (Haar, Spell et al. 2005, Martin, Jones et al. 2006, Benn, Burnett et al. 2009). As already discussed, these differences may be linked to how much control staff have over the changes that are requested. In nursing, those who occupy managerial roles can influence decision-making processes, whilst frontline staff who are in direct clinical contact with service users, tend only to deliver the changes. In their study, Martin, Jones et al. (2006) found that senior managers appraised change more positively, and had significantly higher levels of perceived control over changes as well as more confidence in their ability to continue cope with the additional workload. Wanberg and Banas (2000) also demonstrated that negative perceptions of change were associated with low levels of perceived control over innovation, although this was not in a healthcare setting.

The qualitative data also resonated with the findings described in the literature as staff expressed broad concerns that organisational change was imposed using a top down approach, which did not take into consideration the views of nursing staff. The themes of confidence and powerlessness which were highlighted by Martin, Jones et al. (2006) were also present in these doctoral studies because at baseline, managers felt more confident (model 7.2) and less powerless (model 7.3) towards changes than direct care staff.

The longitudinal study adds further evidence of the influence of staff characteristics in understanding perceptions of barriers to change. Over the 12-month study period for DOORWAYS, there was more negative change in perceptions of barriers to change in the direct care group than in the senior staff group, and this effect was greater in the intervention group than the control group. This was also true of the confidence subscale.

Age

Previous studies have shown that younger staff are more positive towards change (Vroom and Pahl 1971, Bantel and Jackson 1989). In the qualitative interviews, staff did not discuss age in relation to changes. But at baseline perceptions of barriers to change were predicted by the

participant's age (model 7.1, section 7.4.1). Older nurses had better perceptions of barriers to change, although they were no more likely to hold a more senior position in the organisational hierarchy. At both time points, there was a weak effect of age on staff perceptions of barriers to change, and on demotivation. In addition, younger staff became more demotivated over time if they took part in the intervention.

These findings challenge those reported in the literature. However, they may be linked to a study which discovered that of 130 U.S. housing department employees, those with greater resilience had higher levels of change acceptance (Wanberg & Banas 2000). It may be that older staff have more positive perceptions of barriers to change because they are more resilient. Age and resilience may be linked because older staff, who have worked in the NHS for longer are inherently resilient. Or, a greater positivity towards change amongst older nursing staff might reflect their experience which suggests that they are better able to cope, both with the demands of the environment, but also with the demands of the organisation in relation to new changes.

It is also notable that at baseline and at follow-up, younger staff were more burnt out than older staff. This negative outcome requires further exploration since it was not a consequence of participating in the intervention. There may be some parallels between demotivation (as a barrier to change) and burnout, since younger staff were more demotivated than older staff.

However, staff characteristics accounted for only a very small amount of the variance in all the subscales. Therefore, strategies that aim to improve the perceptions of all staff may be the most helpful.

9.5.2 How did ward climate affect staff perceptions of barriers to change?

The qualitative data exposed interruptions to the consistent delivery of change, which were frequently linked to distressed and violent service user behaviour. Under such circumstances, the management of change was for many staff, of secondary importance to creating and maintaining a calm atmosphere. The qualitative data also highlighted how staff perceived chaos as a constant problem by the nature of the client group. This finding is not new. Other, inner city health professionals working in acute ward settings have also linked chaos and ward climate,

> 'Psychosis has a way of inducing chaos and fragmentation, and it's kind of like a manifestation of the condition but also, somehow that gets projected into structures and organisations and systems' (Totman et al 2011).

Currently, there is little research that explicitly links ward climate to perceptions of barriers to change. At follow up, the data suggest that perceptions of ward climate and participation in the intervention together worsened perceptions of barriers to change. This finding is in line with some qualitative research conducted by Brennan, Flood et al. (2006) which suggested that mental health ward staff perceived a need to prioritise safety ahead of delivering innovation. There is

clearly a need to acknowledge and work with staff concerns over ward climate as part of such a strategy.

Although some ward level variables were not successful indicators of ward climate, use of temporary staff, which was measured at the ward level, did have a significant impact on perceptions of barriers to change. At baseline and follow-up, perceptions of barriers to change were worse on wards with high numbers of temporary staff. These findings contribute to our understanding of the negative impacts of over reliance on temporary staff when changes are delivered. If high numbers of temporary staff exist on a shift, innovation is likely to be side-lined. This supports previous literature, which suggests that more unproductive time is generated on wards with higher numbers of temporary staff (Hurst & Smith 2011). Employing large numbers of temporary staff is likely to affect confidence in the quality of work being delivered, as temporary staff do not have site-specific ward experience.

9.6 Outcomes: what were the effects of perceptions of barriers to change and implementation on work satisfaction and burnout?

Workforce responses to change cannot be considered in isolation from the setting where they work. This may be particularly important in mental health wards which are known to be stressful workplaces, with evidence of burnout and reduced work satisfaction in nursing staff because of the challenging ward climate (Severinsson and Hummelvoll 2001, Cleary 2004, Jenkins and Elliott 2004, Fourie, McDonald et al. 2005, Ward and Cowman 2007, Hanrahan, Aiken et al. 2010, Seed, Torkelson et al. 2010).

Wallin, Ewald et al. (2006) have shown that increased commitment to organisational change predicts a decrease in work related burnout. In chapter 7 (model 7.14, section 7.5.4), there was a positive trend in the effect of perceptions of barriers to change on burnout. It may therefore be that decreasing the number of barriers to change might improve perceptions of burnout.

In addition to worsening perceptions of barriers to change, implementing changes also decreased perceptions of work satisfaction. In comparison work satisfaction did not change in the control group. Furthermore, at follow up, the impact of staff perceptions of barriers to change on work satisfaction was more negative in the intervention group than the control group. This supports the work of Wanberg and Banas (2000), who showed that openness towards organisational change predicted better work satisfaction at a later time point. However, this is a new finding for U.K. mental health wards.

As work satisfaction includes factors such as nursing team interactions, task requirements and autonomy, these negative changes may reflect the increased work burden, conflict and lack of control that is likely to be a result of changes.

Irrespective of study group, some staff had more positive perceptions of barriers to change at baseline and comparatively better work satisfaction and burnout scores at follow up. Therefore, there were staff whose baseline optimism was maintained more widely after 12 months. Equally, some staff were more negative at baseline and they remained more negative after 12 months. These findings imply that improving psychological safety (low psychological safety might be considered to reflect negative perceptions of barriers to change), is likely to increase work satisfaction and decrease burnout inclusively.

Since there is evidence that work dissatisfaction is linked to other important outcomes such as high turnover that may result in decreased quality of care (Lu, Barriball et al. 2012, Yanchus, Periard et al. 2017), it may be that improving psychological safety before changes happen, brings other benefits by increasing work satisfaction, staff retention and quality of care. Clearly more research would be needed to substantiate this.

9.6.1 Did perceptions of ward climate affect work satisfaction and burnout?

A number of published studies describe a negative impact of ward climate on perceptions of work satisfaction and burnout (Severinsson and Hummelvoll 2001, Cleary 2004, Jenkins and Elliott 2004, Fourie, McDonald et al. 2005, Ward and Cowman 2007, Hanrahan, Aiken et al. 2010, Seed, Torkelson et al. 2010). Baseline data support these findings because there was a significant effect of ward climate (VOTE T0) on work satisfaction and burnout respectively. At T1, there was also some evidence of a significant decrease in work satisfaction in two wards. These were both intervention wards. There were no differences in burnout scores when comparing ward scores at follow-up.

9.7 Limitations

Specific limitations were discussed in other chapters. However, there are also some more general limitations, which are outlined below to inform future studies.

There were benefits in studying a single organisational culture as this allowed change to be studied in depth. The qualitative data in this study provided a snapshot of staff views of barriers to change, ahead of the DOORWAYS project. The sample represented staff from all grades. Understanding barriers to change from the perspective of the whole nursing team was important because perceptions were expected (and were shown) to vary according to occupational status. However, this study compared only wards from two boroughs of one inner city trust, which may have limited the scope of perceptions of barriers to change that were detected. As a shared organisational culture is likely, it might be useful in future research to compare staff views from more than one mental health trust as well as comparing whether ward staff from a geographically different service setting (e.g. rural setting) report similar perceptions of barriers to change.

As only members of the nursing team were included in these studies, this may have influenced the ‘barriers’ which were revealed. Nurse’s perspectives tend to be at the local level and in the interviews, those in lower grades rarely considered organisational level influences. This limitation

may have been reduced had members of the wider multidisciplinary team been included. There were also benefits in including only the nursing teams as this provided an in depth study of their responses to change. This is important as frontline nursing staff are rarely involved in the decision-making processes for change and despite being service side, their views are underrepresented. This may offer some explanation for previous problems in embedding changes in mental health wards, where morale is lower than other settings, and context issues may not be taken into consideration.

Staff were asked to consider both barriers and enablers to change in the making of the VOCALISE measure. Although staff cited more barriers than enablers, and therefore the focus of the measure was on barriers, both were considered in constructing the items. There are 5 items describing enablers and 13 items describing barriers in the measure. Staff could choose to agree or disagree, using a Likert scale. Table 9.1 shows that staff responses varied suggesting that the identified barriers had different impacts. It may be useful here, to reflect on the contrast between the qualitative and quantitative data in terms of constructed knowledge. It appears that the wider population were not as negative as the staff involved in the qualitative interviews, who were inclined to present pessimistic views of change. In terms of creating a measure, using a Likert scale to allow a range of responses may be important in producing a balanced set of data. Indeed, table 9.1 shows an overall greater disagreement with the barriers outlined in items 5, 12, 14 and 18. Staff gave a strong, positive response to 4 out of 5 of the enablers.

Table 9.1: Barriers to and enablers of change

Item number (N=)	**Type of item**	**Total "disagree" responses (%)**	**Total "agree" responses (%)**
1 (N=124) When it comes to change, information is not circulated effectively on my ward.	BARRIER	59 (48)	65 (52)
2 (N=122) I feel confident when delivering new changes.	*ENABLER*	*15 (12)*	*107 (88)*
3 (N=123) My whole team is regularly consulted about new ideas for ward practices.	*ENABLER*	*20 (16)*	*103 (84)*
5 (N=124) I'm too busy to keep up to date with information about the changes that are happening on my ward.	BARRIER	84 (68)	40 (32)
6 (N=123) We can easily fit new changes in with our usual ward practices.	*ENABLER*	*88 (72)*	*35 (28)*
9 (N=124) I feel disheartened when others do not want to get involved in changes.	BARRIER	28 (23)	96 (77)

Item number (N=)	Type of item	Total "disagree" responses (%)	Total "agree" responses (%)
10 (N=121) I think that managing risk is more important than delivering new changes.	BARRIER	43 (36)	78 (64)
12 (N=124) Changes just increase my workload and make my life harder.	BARRIER	81 (65)	43 (35)
13 (N=122) It is not clear how all changes that we are asked to make will really benefit my ward.	BARRIER	56 (46)	66 (54)
14 (N=124) My teammates think that there is no point trying to implement some changes because they won't work.	BARRIER	75 (60)	49 (40)
15 (N=123) I find it de-motivating when new changes do not take patients' wishes into account.	BARRIER	17 (14)	106 (86)
16 (N=121) I think that some staff would rather let others take the lead in making changes.	BARRIER	26 (21)	95 (79)
17 (N=120) When some staff stop engaging with planned changes resistance spreads through my whole team.	BARRIER	42 (35)	78 (65)
18 (N=123) I do not really understand how to deliver some of the changes that are suggested by the management.	BARRIER	76 (62)	47 (38)
20 (N=119) Changes are audited to increase their consistent delivery on my ward.	*ENABLER*	*19 (16)*	*100 (84)*
21 (N=121) I always challenge team members who are avoiding delivering new changes.	*ENABLER*	*43 (36)*	*78 (64)*
22 (N=123) Inadequate staffing prevents changes being successful on my ward.	BARRIER	13 (11)	110 (89)
23 (N=123) Poor leadership prevents changes happening on my ward.	BARRIER	48 (39)	75 (61)

As the qualitative data were collected before any changes were instituted, they did not provide any insight into the process of implementation, which occurred through DOORWAYS. It may have been useful to capture qualitative data through the process of change to provide information about any difficulties, as has been attempted in other studies (Dopson S, Locock L et al. 2001, Oakley,

Strange et al. 2006). However, collecting qualitative data midway through a randomized controlled trial, may have affected the outcome measures, with negative impacts on fidelity and the reproducibility of the results. Concerns over fidelity might be overcome in future studies by using targeted outcome measures like VOCALISE, which would provide post experiment information about how staff responded at different stages of the change process, in conjunction with a measure of intervention efficacy. Hence, VOCALISE may be used by researchers to tailor interventions to improve the likelihood of changes being adopted successfully. If required, strategies may then be introduced to help embed new changes.

Change itself is a complex construct. The longitudinal study indicated that DOORWAYS had a negative impact. However, as only one type of change was explored the results cannot explain how ward staff might respond to other types of change. As discussed previously, DOORWAYS was an externally developed change that was introduced using a top down approach, which may have negatively affected how staff responded. Studying change which was adopted using a quality improvements method controlled by staff, may have produced more positive results (Taylor-Watt, Cruickshank et al. 2017). Further, as this research was conducted in one trust, our understanding of the impact of DOORWAYS is restrictive. To ensure that future findings are generalizable, more than one organisation should be sampled.

Using only one method of measurement (i.e. capturing staff perceptions) may also limit our understanding of the total impact of change, and may not encompass all the complexities of innovation. This thesis did not measure efficacy as the data were only collected over 12 months and these outcomes were part of the blinded randomized controlled trial. Future research should consider efficacy as, for instance in this study, increased therapeutic activity following staff training may have had a buffering effect on burnout levels, which did not change as a result of participation in the intervention. Positive effects may also have accrued from the skills training which was not measured.

As this series of studies was hypothesis generating, a large number of exploratory statistical tests were carried out. This will have increased the chance of significant results occurring by chance. Future replication research will therefore be required.

9.8 Research implications

9.8.1 Studying change in mental health wards: future approaches

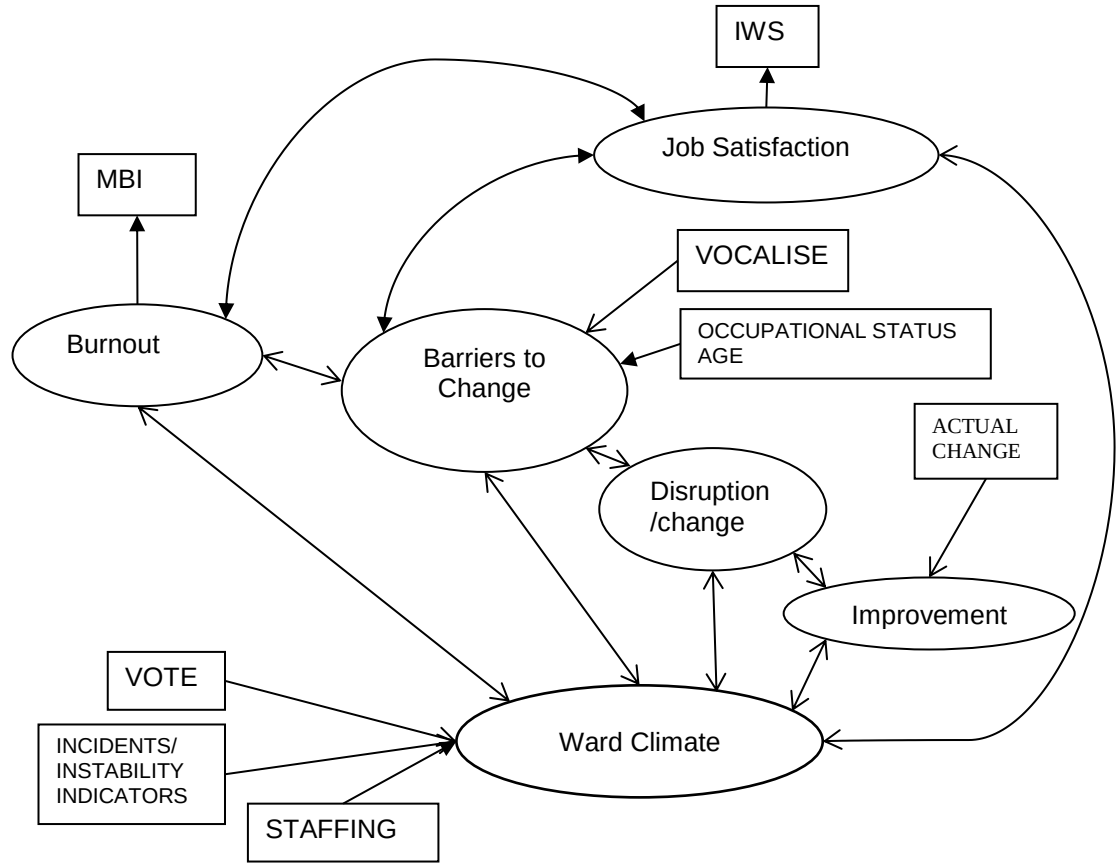
Future research studies might overcome the limitations described in this thesis by comparing more than one organisational culture, the wider multi-disciplinary team, and/or by considering more than one type of change.

The follow up study provided evidence that a period of change worsened perceptions of barriers to change and ward climate, resulting in negative effects on staff, in terms of reduced work satisfaction and increased burnout. However, given work settings have complex characteristics, a more comprehensive assessment of the acute ward environment will be needed to clarify which

factors increase as well as protect against staff negativity when changes are initiated. Given the qualitative study highlighted relational issues amongst the nursing team, which were perceived to inhibit changes, future research might explore whether team culture/climate is also a factor in implementation. It may also be useful to consider the effects of leadership in conjunction with team culture /climate; given both have a positive impact on ward structure, with beneficial effects on patient aggression and staff burnout in acute mental health wards (Bowers, Nijman et al. 2011).

In this research, there were both advantages and limitations in using linear models. Given mental health wards are complex working environments with many inter-related factors, linear models, which consider that dependent variables are outcomes of relevant predictor variables, may not provide sufficient explanation of all variable relationships. Figure 8.13, which displays the longitudinal study findings (p.221) highlights one such limitation, by indicating an indirect effect of both ward climate and change related disruption on burnout which was not tested. There may also be reciprocal relationships between staff perceptions of barriers to change, ward climate, work satisfaction and burnout. For example, work dissatisfaction and high levels of burnout could be the result of negative perceptions of barriers to change or the ward climate. Alternatively, work dissatisfaction and high levels of burnout could explain why perceptions are pessimistic, before changes are applied. Equally, negative perceptions of barriers to change might be a function of a poor ward climate, or explain why the ward climate is perceived as difficult. Hence, a model such as the one outlined below in figure 9.1 might be more realistic and future studies might consider using structural equation modelling to test this. In the studies presented, this was not possible, as structural equation modelling requires a dataset that is larger and complete.

Figure 9.1: A model of the potential relationships between change (implementation process), perceptions of barriers to change, ward climate, work satisfaction and burnout, for future consideration



As indicated in figure 9.1, future research also might consider whether a feedback loop exists whereby a difficult ward climate worsens perceptions of barriers to change, which (in the presence of change related disruption) limits and prevents improvements, which therefore worsens both ward climate and perceptions of barriers to change. This might be tested using linear regression modelling although multiple data points would be required. After two years the DOORWAYS study showed success with increased ward activities and better involuntary patient perceptions (Wykes, Csipke et al. 2017). These successes will allow an examination of whether they led to improved staff perceptions.

9.8.2 **Measuring ward climate**

Risk management is a core component of acute ward working and the effects of risk management strategies on perceptions of barriers to change should be investigated further. At baseline, a number of ward level variables were considered, which captured incidents, risk related variables (including close observations and whether service users were detained under the Mental Health Act (2007). These ward level variables were explored as indicators of instability in the ward climate, but the data for incidents and close observations lacked variation. Including more wards might increase the chance of variation; however, it may also be useful to consider whether other indicators may be more illuminating. For example, the measures used to capture close observations at baseline, were available only for female wards as close observation was not used

on wards for men. Therefore, although there was a trend for higher levels of close observations to be associated with worsened perceptions of barriers to change, more data would be required to explore any links to gender. It may be that staff perceive risky service user behaviour differently depending on whether they are men or women. It may be that different approaches are used for risky behaviour between male and female wards with pro re nata (PRN; or, as required) medication being used in the male wards instead. Future research might therefore consider additional risk management variables such as PRN medications. There was no significant effect of detention under the Mental Health Act (2007) on perceptions of barriers to change. However, this may have resulted from sample homogeneity, given all wards contained relatively high numbers, as expected in acute settings currently. In future, it might be more useful to investigate settings with differing levels of restriction e.g. by comparing psychiatric intensive care units (where no leave is generally permitted). On acute wards, an exploration of leave allowances for those who are detained might provide a more accurate picture of how detention affects staff workload.

Poor variation in the ward level data may also explain why there was some divergence between the qualitative and the quantitative data, which suggested that patient turnover (bed pressure) was a barrier to change; whereas at baseline there was no significant impact of patient turnover on staff perceptions of barriers to change. Bed pressure may be considered as part of clinical workload, and it is of interest that the VOTE: Workload intensity subscale was significantly correlated with all VOCALISE subscales (Powerlessness, Confidence and Demotivation) in the psychometric test of convergent validity). The VOTE: Workload intensity subscale contains relevant items including:

- I feel pressured to complete tasks in my job.
- On my ward there is immense pressure to create bed space.
- When it comes to bed management the clinical perspective of my team is always considered.

Although the ward variable was a useful proxy for ward climate, the subtle impacts of ward climate on staff perceptions of barriers to change might be better understood using a more sensitive measure. Since the VOTE measure includes themes such as leadership and teamwork, future research might usefully consider the effects of leadership, teamwork, and a well organised daily ward structure on staff perceptions of barriers to change, as these may have a positive influence.

9.8.3 **Stakeholder involvement in measure development**

There is some agreement that increased stakeholder involvement is required to produce measures with pragmatic qualities; which target relevant implementation outcomes that are relevant in real life settings (Lewis, Weiner et al. 2015). VOCALISE was developed for use in mental health wards, because they have unique features. Future research may explore stakeholder involvement in measure development to assist in creating setting specific measures in other clinical areas.

9.8.4 The practical applications of VOCALISE

The VOCALISE measure might have a practical application for NHS managers (or researchers) wishing to implement changes on the frontline as it could highlight gaps in leadership (items 3, 16, 18, 20, 21, 23), and feasibility issues (items 5, 6, 10, 22), as well as providing information on staff motivation, confidence and powerlessness via the subscales. VOCALISE might therefore be used as a baseline measure to gauge staff perceptions of changes ahead of implementation. Interventions and change management strategies might be tailored to incorporate information collected using VOCALISE to improve the likelihood of changes being adopted successfully.

VOCALISE also provides information about the psychological/emotional responses of staff to changes, particularly via the subscales. Therefore, researchers might use VOCALISE to study the longitudinal impact of changes over time, in terms of staff perceptions of confidence, demotivation and powerlessness.

9.9 Clinical implications and future strategies for change in mental health wards

Although the Nursing & Midwifery Council (2015) Code of Conduct states that nursing staff should practice in line with the best available evidence, there is still a prominent disconnect between frontline practice and research evidence. The data reported in the qualitative stage of this thesis suggested that in the absence of psychological safety (i.e. if there were many barriers to change), this might be understood as a negative culture towards innovation, at the ward level. The VOCALISE measure might inform future implementation strategies by exploring how staff view upcoming changes and their feasibility. Future change strategies might also consider whether interventions to improve clinical care, should also target psychological safety by improving how staff perceive barriers to change as an integral part of the change strategy. If psychological safety can be improved, it may be that a more positive culture towards innovation will accompany that, which may enhance implementation.

9.9.1 How might psychological safety be improved?

Initially, it may be important for organisations to review system level barriers such as their culture towards innovation as well as their capacity to deliver changes in terms of management, training, supervision and staffing (Cleary, Horsfall et al. 2010). The data presented in chapters four, seven and eight suggest that baseline staff morale and regard for changes might require improvement before changes are implemented. More in line with quality improvement methods, future research might therefore consider an intervention to improve staff morale and attitudes to change, which might be assessed a number of times before a second intervention to deliver service changes is implemented.

A similar approach has already produced positive effects in team work and morale in an East London trust, where a Plan-Do-Study-Act (PDSA) quality improvement methodology with its origins in business management (Deming 2000), was employed to improve patient safety (Taylor-

Watt, Cruickshank et al. 2017). By holding regular meetings, and developing staff-led suggestions for improvements to ward safety, this research group tested the impact of safety huddles and a violence checklist over a period of two years. The authors report a qualitative improvement in team spirit/culture, as a result of the team approach taken to quality improvement, however there is no formal measurement of this outcome.

Nursing teams may benefit from identifying which of the nursing roles have the capacity and knowledge to champion innovation, to increase nursing participation in changes. The practice development nurse (PDN) role could be honed to meet this purpose, so that staff and service development is coordinated by these staff, with direct input from frontline colleagues. Ideally, with a PDN on each ward, these staff could form a network to deliver innovation-focused leadership, supervised by a nurse consultant. An assessment of staff skills may be important since direct change and project management skills may be lacking in some nursing staff (Cleary, Horsfall et al. 2010).

Stakeholder involvement

DOORWAYS included a high degree of stakeholder involvement and many of the practical suggestions made by frontline staff were adopted at the implementation stage. Senior ward staff were involved in discussion about the project upfront. Feedback from frontline staff was incorporated into the strategy via the psychologist who helped staff to set up each wards groups and also provided training, support and leadership to staff to improve the psychological safety for learning. However, despite responsive efforts to tailor the strategy for change delivery, the longitudinal findings showed that there were negative impacts on staff perceptions. In line with the theories of Lewin (1951) and Schein (1996), perhaps this is linked to the nature of the change, which was externally developed and imposed on staff. The DOORWAYS intervention required high levels of nursing input in addition to their other tasks with no time allowance for that. As staff shortages are problematic in mental health wards, additional resources may be required if complex RCTs are to be conducted in mental health wards in the future. Policy makers, NHS trusts and higher education settings might give further thought to how resources can be better allocated, given RCTs bring valuable learning experiences, which develop frontline staff, as well as measureable improvements and increased funding.

Ross and Naylor (2017) have suggested that quality improvement requires direct and regular engagement with frontline teams to develop solutions rather than imposing them using top down management methods. These findings reflect the qualitative data given staff suggested that upcoming changes could be better described and negotiated by senior Trust staff.

It may therefore be that developing a more comprehensive change management strategy on the basis of stakeholder involvement, which could be formally assessed over a period of change, might have positive outcomes. Further, this would allow an exploration of whether more active stakeholder involvement might improve how staff regard psychological safety on the wards. Again, findings from work undertaken by the King's Fund indicate board-level commitment to

improvements, and peer-to-peer discussion held early on can assist in developing strategies for quality improvement. (Ross and Naylor 2017). In this way, feasibility issues might be addressed by encouraging staff generated adaptations that better suit the clinical environment.

Ward climate

Bowers et al (2007, 2011) have written about the positive effects of providing a consistent structure on mental health wards, in terms of rules, organisation and daily ward routines. Embedding a daily routine, with processes for monitoring change might improve psychological safety when changes are implemented. It may then be feasible to maintain consistent shift plans that address planned objectives, both towards patient care, as well as innovation and staff development. It may also be useful to provide support over longer timeframes.

Staffing

There were small, negative effects on perceptions of barriers to change as a result of staffing shortages, which are visible in these data. This problem, which is widespread throughout the NHS, is not easily rectifiable because there are multiple causes. First, access to nursing training requires urgent review, since the bursary funding to support university degree trainees has been cut. It is unclear whether sufficient numbers of nursing students will be attracted to courses that incur high levels of debt through student loans. Although a strategy to introduce government funded nursing apprenticeships is in development, it is unlikely that this will produce enough trainees to resolve the staffing deficits. Second, there are very high numbers of staff working as temporary NHS employees who are not U.K citizens. Strategies outlining how to manage the workforce if the access rules to the U.K are changed post Brexit, is currently being debated. Thirdly, there are significant issues with recruitment and retention in the NHS. In some areas, geography plays a role and attracting enough applicants to vacancies can be problematic. Since moving more care into the community, mental health service users are presenting to wards in more acute states, and there are reports of much higher turnover, increased workload and a greater sense of risk where demand for bed space requires pro-active discharge (MHAC 2005, Saxena, Barrett et al. 2007, Knapp, McDaid et al. 2008). It is perhaps not surprising that staffing these units and then retaining staff is becoming a challenge.

Occupational status

The findings of the differential impact of change on senior and direct care staff suggest that change programmes should be sensitive to those working in direct care roles, as this sub-group may need extra support. Equally, younger staff may be particularly vulnerable to the uncertainties that accompany change and also require more targeted support.

Work satisfaction

Some intervention to identify those who are dissatisfied at work prior to innovation may be important in future change initiatives, given these staff are also likely to have negative perceptions of barriers to change. Whilst there may be a number of issues to resolve (which might include autonomy, recognition, staff interactions or workload) which affect whether they enjoy their role

at work it may be that tackling some of these problems has wider benefits, which also support changes.

9.9.2 **Are the findings generalizable?**

Whether the results of the RCT studied in this thesis are generalisable to other mental health settings is unclear. There is scant evidence of a similar nature with which to draw comparisons. Further, the implementation science/change literature contains a range of opinions regarding generalisability. Eccles et al, (2009) suggest that as health settings are likely to vary, implementation studies should be conducted across a variety of settings. Since acute mental health wards have unique cultures, it may be that contextual factors are important. Fixsen, Naoom et al. (2005) have suggested that models of implementation theory might be applied across health settings. As already discussed, the idea that a largescale change is likely to have a negative impact of employee perceptions is not new, and the main findings in chapter 8 reflect the theories of Lewin (1951) and (Schein 1996).

Ross and Naylor (2017) have suggested that with some adaptation, quality improvement approaches used in general NHS settings might be useful in mental health settings. However, there are still few outcome measures. The VOCALISE measure might therefore be adapted for use in general settings, given only two items specifically refer to mental health service issues; or community based mental health settings.

The qualitative and baseline data in this thesis suggested that staff perceptions of barriers to change were negative, and indeed, there was a negative impact on job satisfaction over time in the presence of a large-scale change. This finding is in line with other studies, which adds to its credence. Martin, Jones et al. (2005) have shown that if staff believe that their organisation has a positive psychological climate, they will appraise changes more positively which leads to better outcomes in terms of improved job satisfaction. This work was undertaken in one general hospital setting and one public sector (non-healthcare setting). Further, Wanberg and Banas (2000) have shown that employee openness towards organisational change predicted better work satisfaction at a later time point in a U.S. housing department.

Finally, other authors have discovered that organisational culture affects behaviour and attitudes, mediated by climate (Aarons and Sawitzky 2006b, Glisson and Williams 2015). This thesis presents a similar pattern, by showing that ward climate and implementation related disruption worsened attitudes towards changes. Overall, it is clear that the results will require further replication, before general conclusions can be determined.

9.10 Conclusion

The purpose of this thesis was to explore staff perceptions of barriers to change in acute mental health wards, given previous attempts to innovate have been problematic in these complex clinical settings. Perceptions of barriers to change were explored qualitatively in order to create a measure, and then in the field. As well as using stakeholder participation to develop a measure

which truly represented acute ward nursing staff views, this thesis also contributes to Implementation Science as one of a small number of studies which uses robust methods in the form of a randomised controlled trial, to evaluate how change affects the workforce. The DOORWAYS study provided a valuable opportunity to explore whether an intensive process of implementation affects staff perceptions of barriers to change, ward climate, work satisfaction and burnout, over a 12-month period of implementation.

The main finding in this thesis was that change disruption as a result of participation in DOORWAYS, worsened perceptions of barriers to change. In addition, occupational status (being from the direct care group), age (being younger) and ward climate worsened perceptions of barriers to change. This suggests that younger staff and those who provide direct care should be offered extra support when changes are introduced. Wider adverse effects were also seen as work satisfaction decreased across time, as a result of participation in the intervention.

More work is needed to explore how to reduce the burden of innovation in mental health wards, since this may improve the overall working experience for nursing staff. It is clear that considering the links between psychological safety and the emotional impact of innovation on staff may assist in our understanding of employee resistance to changes.

Appendix A. Strategy for searching the literature

Databases used were: Embase 1974 to week 22 2016; Ovid MEDLINE 1946 to May week 4 2016; PsychINFO 1806 to May week 4 2016.

The focused review question was: What are staff perceptions of barriers to change in acute mental health wards?

Search terms were:
Search 1 (3437286 articles)

- "Attitude of Health Personnel"/ OR Attitude/ OR attitude$.mp
- OR belief$.mp. OR Culture/
- OR perception$.mp. OR Social Perception/
- OR view$.mp
- OR opinion$.mp. OR Health Knowledge, Attitudes, Practice/

AND
Search 2 (419005 articles)

- organi#ational change.mp
- OR organi#ational development.mp
- OR Evidence-Based Practice/ OR "Diffusion of Innovation"/ OR implementation science.mp. OR Health Services Research/
- OR barrier$ to change.mp
- OR resistance to change.mp
- OR Organi#ational Innovation/ OR innovation.mp.

AND
Search 3 (329265 articles)

- psychiatr$ service$.mp
- OR Community Mental Health Services/ OR Mental Health Services/ OR mental healthcare.mp. OR Hospitals, Psychiatric/ mental health services
- OR Psychiatric Nursing/ OR Psychiatric Department, Hospital/ OR mental health ward$.mp. OR Nursing Staff, Hospital

AND
Search 4 (1421638)

- nurs$.mp. OR Nursing/

Research that was conducted in Asian countries was excluded. After combining searches 1 to 4 and removing duplicates, produced 1076 articles, retrieved on 02/09/2008 (and 1414 on 24/01/2017, when the literature was revisited). Nineteen relevant articles were included and the reference lists of relevant papers were also hand searched. The criteria for including these 19 papers were that they described staff views of change on mental health wards.

Additional searches: Keyword and string searches were conducted for implementation climate, organi#ational climate and staff characteristics (using databases above and Implementation Science journal Google scholar)

Searches	Results	Relevant
organi#ational climate AND change	27	1
occupational seniority OR occupational status OR occupational role AND Search 2	44	1
age AND Search 1 AND Search 2 AND Search 3 AND Search 4	196	1
educational status AND Search 2 AND nurs$.mp. or Nursing	133	2
ethnicity AND Search 1 AND Search 2 AND Search 4	30	0
gender AND Search 1 AND Search 2 AND Search 3 AND Search 4	20	0

Appendix B. Ethical Approvals

B.1 Substantial amendment to create and include the VOCALISE measure in the PERCEIVE programme.

Bexley & Greenwich Research Ethics Committee
South London REC Office (4)
Ranken House
Queen Elizabeth Hospital
Stadium Road
Woolwich
London
SE18 4QH

Study title:	**Patient contributions to the evidence base**
REC reference:	**07/H0809/49**
Amendment number:	**1**
Amendment date:	**29 May 2008**

The above amendment was reviewed at the meeting of the Sub-Committee of the REC held on 09 July 2008.

Ethical opinion
The members of the Committee present gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents
The documents reviewed and approved at the meeting were:

Document	Version	Date
Protocol	2	29 May 2008
Participant Information Sheet	1d	26 May 2008
Participant Consent Form	1d	26 May 2008
Notice of Substantial Amendment (non-CTIMPs)	1	29 May 2008

Statement of compliance
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

B.2. Qualitative Interviews - Information sheet and consent form

Staff information sheet
Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the research about? The purpose of the study is to develop a measure of what staff think are the main barriers to change when it comes to service improvements on in-patient wards. We are inviting people who have worked on acute in-patient wards to participate in this research.

Do I have to take part? It is up to you to decide. We will describe the study and go through this information sheet which we will then give to you. We will then ask you to sign a consent form to show you have agreed to take part. You are free to withdraw at any time, without giving a reason.

Why are we doing the research? We are carrying out this study because we want to know from staff themselves what their experience of making changes to the working practices of acute wards has been and how the atmosphere, activities and therapy could improve. We will use the final measure as part of a further study when we introduce new practices on some wards to see if they really do improve things.

What will I have to do? We will ask you to spend about half an hour talking to a nurse researcher. The nurse researcher will ask you about your experiences of working in a frequently changing organisation and ask you to make suggestions about the key barriers to change and what the areas affecting sustainable service developments on acute in-patient wards are. The conversation will be audio-taped.

What are the possible disadvantages to taking part? There are no immediate disadvantages to taking part.

What are the possible benefits? The research the results will help to guide practice on inpatient wards in the future.

What if there is a problem? If you have any concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (contact number XXX XXXX XXXX). If you remain unhappy particularly about the way you have been dealt with during the study, then contact Professor XXXX (contact number: XXX XXXX XXXX).

Will my taking part in the study be kept confidential? Yes. All the information which is collected about you during the course of the research will be kept strictly confidential and any information that is stored will have your name and address removed so that you cannot be recognised. The information will only be available to authorised personnel.

What will happen if I don't want to carry on with the study? If you decide to withdraw from the study at any time, that is up to you.

What will happen to the results of the study? We intend to publish the results in journals where it will have the most influence. So we will publish in medical journals as well as making sure that nursing staff will have access to the information whether or not they took part in the research. You will not be identified in any of these reports.

Who is paying for this research? The research is paid for from the NHS as part of a programme grant for a set of studies from the National Institute for Health Research in England.

Who has reviewed this study? All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by the Bexley and Greenwich NHS Research Ethics Committee.

Expenses
We will pay you £5 for each interview in recognition of your time.

Consent form

Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

Name of the Researcher: Caroline Laker

1. I confirm that I have read and understood the information sheet (26th May 2008) for the above study. I have had the opportunity to ☐

consider the information, ask questions and have had these answered satisfactorily

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐

3. I agree to take part in this study ☐

Please put your initials into the box

Name of staff member	date	signature
Name of Person taking consent	date	signature

When completed (1 copy is for the participant, 1 copy is for the research file)

B.3. Feasibility Study - Information sheet and consent form

Staff information sheet – Feasibility Study- Barriers to Change

Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the research about? We want to develop a measure of staff views of barriers to change on acute wards. We will be asking what staff think are the main barriers to change when it comes to service improvements on in-patient wards; and so we are inviting people who are currently working on acute in-patient units to participate in this research.

Do I have to take part? It is up to you to decide. We will describe the study and go through this information sheet which we will then give to you. We will then ask you to sign a consent form to show you have agreed to take part. You are free to withdraw at any time, without giving a reason.

Why are we doing the research? We are carrying out this study because we want to know from staff themselves what their experience of making changes to the working practices of acute wards has been and how the atmosphere, activities and therapy could improve. We will use the final measure as part of a further study when we introduce new practices on some wards to see if they really do improve things.

What will I have to do? We will ask you to provide us with some information on how you are feeling and your views changes on this ward by completing 1 questionnaire. You will be asked to comment on this questionnaire, adding things you think are absent, deleting things you think are unimportant and generally refining the scale. This is part of a larger study and eventually the scale will be used in other parts of the research with staff who are currently working on acute wards. The preliminary scale itself has been constructed through interviews with staff.

What are the possible disadvantages to taking part? There are no immediate disadvantages to taking part.

What are the possible benefits? The results will help to guide practice on inpatient wards in the future.

What if there is a problem? If you have any concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (contact number XXX XXXX XXXX). If you remain unhappy particularly about the way you have been dealt with during the study, then contact Professor XXXXX (contact number: XXX XXXX XXXX). If you wish to complain formally, you can do this through the NHS Complaints Procedure. Details can be obtained from the hospital.

Will my taking part in the study be kept confidential? Yes. All the information which is collected from you during the course of the research will be kept strictly confidential and any information that is stored will have your name and address removed so that you cannot be recognised. The information will only be available to authorised personnel.

What will happen if I don't want to carry on with the study?
If you decide to withdraw from the study at any time, you are free to do so.

What will happen to the results of the study? We intend to publish the results in journals where it will have the most influence. So we will publish in medical journals as well as making sure that nursing staff will have access to the information whether or not they took part in the research. You will not be identified in any of these reports.

Who is paying for this research? The research is paid for from the NHS as part of a programme grant for a set of studies from the National Institute for Health Research in England.

Who has reviewed this study? All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by the Bexley and Greenwich NHS Research Ethics Committee.

Consent form
Feasibility Study

Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

Name of the Researcher:

1. I confirm that I have read and understood the information sheet (27th August 2008) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
3. I agree to take part in this study ☐

Please put your initials into the box

| --- | --- | --- |
| Name of staff member | date | signature |

| --- | --- | --- |
| Name of Person taking consent | date | signature |

When completed, copy is for the participant, 1 copy is for the research file

B.4. DOORWAYS information sheet and consent form

Staff participant information sheet

Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the research about? The purpose of the study is to measure the effects of introducing more therapeutic activities to inpatient wards. We are approaching you because you work on an inpatient ward

Do I have to take part? It is up to you to decide. We will describe the study and go through this information sheet which we will then give to you. We will then ask you to sign a consent form to show you have agreed to take part. You are free to withdraw at any time, without giving a reason.

Why are we doing the research? We are carrying out this study because we do not yet know whether or how much benefit these new changes to the wards will produce. They will be introduced to the wards in XXXXX and XXXXX over time and we will compare the effects before and after their introduction as well as between different wards. To try to make sure that the wards have an equal chance to get the new interventions earlier or later we will be putting them into the interventions group by chance. You may or may not notice whether you are on a ward that is currently trying to introduce these changes. Eventually all wards in XXXXX and XXXXX will be receiving these interventions.

What will I have to do? If you decide to take part we will ask you to provide us with some information on your views of this ward. You will complete a questionnaire which will take about 15 minutes to complete. **Additionally, we'd like to ask you to complete a simple 5 item questionnaire every few weeks. The research is continuing for a period of four years, but data collection finishes at 18 months.**

What are the changes to the ward? We will be introducing more activities and therapy groups to wards such as voices groups.

What are the possible disadvantages to taking part? There are no immediate disadvantages to taking part.

What are the possible benefits? The results will help to guide practice on inpatient wards in the future.

What if there is a problem? If you have any concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (contact number XXXX or XXXX or XXXX). If you remain unhappy particularly about the way you have been dealt with during the study then contact Professor XXXX (contact number: XXXX).

Will my taking part in the study be kept confidential? Yes. All the information which is collected about you during the course of the research will be kept strictly confidential and any information that is stored will have your name and address removed so that you cannot be recognised. The information will only be available to authorised personnel.

What will happen if I don't want to carry on with the study? If you decide to withdraw from the study at any time, that is up to you.

What will happen to the results of the study? We intend to publish the results in journals where it will have the most influence. So we will publish in medical journals as well as making sure that service users will have access to the information whether or not they took part in the research. You will not be identified in any of these reports.

Who is paying for this research? The research is paid for from the NHS as part of a programme grant for a set of studies from the National Institute for Health Research.

Who has reviewed this study? All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by Bromley NHS Research Ethics Committee

Staff participant Consent form

Patient contributions to the evidence base on inpatient care
Study: Improving the therapeutic environment on inpatient wards

Name of the Researcher:

4. I confirm that I have read and understood the information sheet (October 9th 2007) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐
5. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
6. I agree to take part in this study ☐

Please put your initials into the box

---------- ---------- ----------
Name of staff date signature

---------- ---------- ----------
Name of Person taking consent date signature

When completed, 1 copy is for the participant, 1 copy is for the research file

Appendix C. Pre-reduction coding framework

DOMAIN: NEGATIVE PERCEPTIONS	
Themes	**Sub themes**
➢ Volume of work	
➢ Team dynamic	➢ Worried about colleagues
	➢ Unsuccessful phasing in...
	➢ Unfair task allocation
	➢ Split management
	➢ Poor staff performance
	➢ Poor staff attitude ➢ Conflict
	➢ Not wanting to address the negativity, resistance
	➢ No teamwork, cohesion, split
	➢ Left out, isolated
	➢ Individual's and personality, different skills
	➢ Hierarchy
	➢ Group dynamic
	➢ Don't want to get involved
	➢ Discussion at peer level
	➢ Different team levels, bands, abilities
➢ Stress, pressure	
➢ Staffing	➢ Sick days, emergency leave
	➢ 24 hour service, hard to access staff
➢ Staff feel threatened, dumped on	
➢ Size of organisation, uniformity can't apply	
➢ Set in their ways	
➢ Safety, V&A, risk	
➢ Role demarcation	➢ Coordinating
➢ Resistance	
➢ Powerlessness	
➢ Poorly defined	
➢ Poor standard of care	
➢ Poor leadership	
➢ Poor communication	➢ Not explained to the participants, no discussion
	➢ No team meeting, official discussion
	➢ No feedback, negative feedback
	➢ Don't want to hear it
	➢ Dissemination of information, notes
➢ Patients don't want to	
➢ Passing the buck, avoidance, reluctance	
➢ Other ward business takes priority, clashes	
➢ Not fair, no reward, negative outcomes	
➢ Not being there when the change came in	
➢ Not able to identify barriers, accepting the bad things	
➢ Not a priority	
➢ No training, wrong skills, under skilled	
➢ No support	
➢ No structure, no rules, no plan, no organisation	
➢ No resources, money	
➢ No intervention, no innovation, nothing new	
➢ No focus	

➢ No flexibility	
➢ No consistency, interruptions	
➢ No confidence, negative view, uncertainty	
➢ No choice, punitive	
➢ Low morale	
➢ Length of stay	
➢ Lock the bedroom doors	
➢ Learning anxiety	
➢ Lack of understanding, seems pointless, not again	
➢ Lack of trust	
➢ Inertia, a dead end, starting	
➢ Imposed, top down instruction, no choice	
➢ Has to be done, consequences are worse....	
➢ External locus of control	
➢ Environment	
➢ Don't know what to do, how to do it	
➢ Differences in ability	
➢ De-motivated, worn down, burnt out, undervalued	
➢ Cumulative bad experiences decrease motivation	
➢ Crisis on the ward, perceived catastrophe	
➢ Change is not possible, is not good, is pointless, won't work	
➢ Anxiety	
➢ Admin	
➢ Acuity, chaotic ward, too unwell	
POSITIVE PERCEPTIONS	
Themes	**Sub themes**
➢ Training (skills development/shared learning)	
➢ Teamwork (cohesion, whole team approach)	➢ Team meeting (discussion) ➢ Involve external professionals ➢ HCA approaches ➢ Band 7 approaches ➢ Band 6 approaches ➢ Band 5 approaches
➢ Taking responsibility (sharing responsibility/ownership of change/'in it together')	
➢ Supervision	
➢ Strategy, planning, rules, protocol, clarifying	➢ Use already there structures & add in new themes
➢ Staff get used to it	
➢ Staff are for change	
➢ Small steps	
➢ Re-structuring	
➢ Responding to what service users want	
➢ Requires organisation	
➢ Reduced stress	
➢ Reduced acuity	
➢ Provide a protected time	
➢ Pro's and con's discussions	
➢ Praise for what is done well	
➢ Policy guided, Trust directed, Gov. directed	
➢ Play to peoples' strengths, roles, bands	
➢ Phased in	
➢ Peer support, empowerment, add value	

➢ Offer solutions, suggestions	
➢ Nurses could empower health care assistants more	
➢ Not there when change came in so not a problem	
➢ No resistance	
➢ Motivation, positivity	
➢ Monitoring, audits	
➢ Models of change, problem solving, identifying leads	
➢ Managerial support	➢ Pick out the important bits
➢ Make it a priority, prioritise duties	
➢ Leading by example, leadership	
➢ Keep trying, make an effort	
➢ Job satisfaction, proud of achievements	
➢ Improved care	
➢ Identify a need, level of need	
➢ How to engage participants, building relationships	
➢ Have to get on with it	
➢ Followers	
➢ Flexibility	
➢ Finding resources	
➢ Evidence based	
➢ Environment, atmosphere	
➢ Emotional intelligence	
➢ Directive approach	
➢ Consistency, boundaries	
➢ Communication, info dissemination	➢ Ask the patients what they want, think
➢ Choice	
➢ Challenge the resistance	
➢ Benefits	
➢ Allocate specific tasks, role demarcation	➢ Patients are clear about role
➢ Nothing changes	

Appendix D. Final VOCALISE and VOTE measures

D.1. STAFF PERCEPTIONS OF BARRIERS TO CHANGE (VOCALISE)

Notes for Completion

1. Within the NHS approaches to practice often change. We would like to learn more about what staff think of this
2. The aim of this questionnaire is to capture staff perceptions of barriers to change
3. It can be useful to pick up on these barriers so we can see how to improve working practices when changes are implemented on wards
4. Please complete the questionnaire based on your experiences of clinical changes that have already happened

1. When it comes to change, information is not circulated	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
2. I feel confident when delivering new changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
3. My whole team is regularly consulted about new ideas for ward practices.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
4. My teammates tend to have different ideas about how to manage changes so making a plan is difficult.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
5. I'm too busy to keep up to date with information about the changes that are happening on my ward.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
6. We can easily fit new changes in with our usual ward practices.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
7. When my ward is acute and chaotic it prevents us from delivering changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**

8. There is enough flexibility during my shifts to deliver new changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
9. I feel disheartened when others do not want to get involved in changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
10. I think that managing risk is more important than delivering new changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
11. On my ward, the culture of 'just doing enough to get through your shift', makes change less likely to happen.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
12. Changes just increase my workload and make my life harder.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
13. It is not clear how all changes that we are asked to make will really benefit my ward.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
14. My teammates think that there is no point trying to implement some changes because they won't work.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
15. I find it de-motivating when new changes do not take patients' wishes into account.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**

16. I think that some staff would rather let others take the lead in making changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
17. When some staff stop engaging with planned changes resistance spreads through my whole team.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
18. I do not really understand how to deliver some of the changes that are suggested by the management.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
19. I regularly take on challenges outside my job description to ensure change happens.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
20. Changes are audited to increase their consistent delivery on my ward.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
21. I always challenge team members who are avoiding delivering new changes.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
22. Inadequate staffing prevents changes being successful on my ward.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**
23. Poor leadership prevents changes happening on my ward.	**Strongly Agree 1**	**Agree 2**	**Slightly Agree 3**	**Slightly Disagree 4**	**Disagree 5**	**Strongly Disagree 6**

Please rank the top 3 barriers on your ward. You could consider the last 23 barriers mentioned in the questionnaire or others that you think are more important: **1.** **2.** **3.**

Any Comments?

D.2 Views **O**n **T**herapeutic **E**nvironments **(VOTE)**

Staff Perceptions Questionnaire

CONFIDENTIAL

- We understand that the client mix and staff mix changes frequently.

Think about each question over a 4 week period of time on your ward. When you weigh up all the different factors you will be able to arrive at an average answer that can be described using the scale.

- Some of these questions will relate to your own practice and some questions will relate to the team generally. If the question relates to the team, try to come up with an **average** answer.
- Please use the comments boxes to 'qualify' your answers.
- Please circle one answer per question.

PATIENT CARE

1. **It is easy to balance documentation/paperwork and spending time with the patients on my ward.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

2. **Patients can feel that there is a sense of 'them and us' on my ward.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

3. **Patients are provided with enough information about their medication on my ward.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

4. **I get the impression that patients feel that the qualified staff are too busy to spend**

quality time with.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

5. **I feel pressured to complete tasks in my job.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

6. **If I have concerns about patient care I am happy to address it with colleagues.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

Comments:

THERAPEUTIC INTERVENTIONS

- **Therapeutic intervention** is a general term that includes:

1. **ACTIVITIES**: games (scrabble, pool, cards), shopping, going for a walk, sports etc
2. **PSYCHOSOCIAL INTERVENTIONS**: care planning, relapse prevention, medication management, solution focused therapy, mental state assessments, risk assessments etc

7. **The atmosphere on my ward is calm enough for me to do one to one work with patients.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

8. **When I ask patients' to join in with activities, they say they are not interested in those on offer.**

(See definition 1)

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

ONLY answer Q9 if you are a NURSING ASSISTANT/HCA:

9. **I need more support from qualified staff around doing therapeutic interventions with patients.**

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

Please now proceed to Q11 - ONLY answer Q10 if you are a QUALIFIED NURSE:

10. I have plenty of time to work through psychosocial interventions with patients.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

Please now proceed to Q11

TRAINING

11. Other than mandatory training, staff development opportunities are limited.

(Examples: CBT training, degrees, masters, RMN training for support workers).

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

12. I benefit from regular supervision.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

Comments:

MANAGEMENT

13. I benefit from strong leadership on my ward.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

14. I think that the senior managers (above ward managers) understand the current realities of working on acute wards.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

15. Finding enough staff to cover shifts is easy on my ward.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

16. On my ward there is immense pressure to create bed space.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

17. When it comes to bed management the clinical perspective of my team is always

considered.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

SAFETY

18. There are enough staff to maintain safety on my ward.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

19. I worry about violence and aggression when at work.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

Comments:

TEAM WORKING

20. When it comes to patient care there are staff in my team who have a 'can't do, won't do' attitude.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

21. I find that communication between the different Multi Disciplinary Team (MDT) professionals is consistently good.

(MDT includes Community Mental Health Team, nursing team and other professionals).

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

22. Decisions that are made on one shift are changed on the next which makes consistency difficult in my team.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

23. I'd rather not address relationship issues between teammates because it will create a bad atmosphere.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

24. There is a strong emphasis on promoting a sense of team spirit on my ward.

1	2	3	4	5	6

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

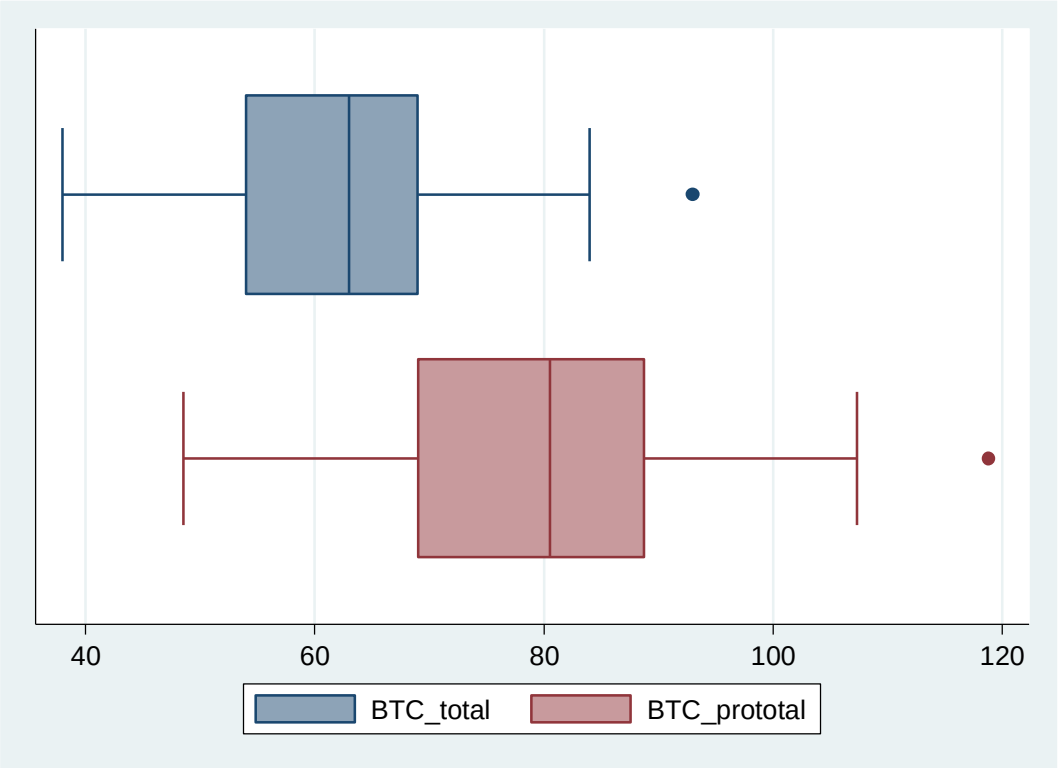
Appendix E. Distribution Assessments (T0 & T1)

E.1 Baseline assessments

A normally distributed variable would have no skew and a kurtosis of three (Acock, 2006). The distributions of all four staff variables (a) VOCALISE T0, (b) were described at baseline to determine their suitability for regression analyses.

(a) VOCALISE T0

Figure E.1: Distribution of VOCALISE measure (total and prorated total scores)



In this sample, the VOCALISE variable presented a slight negative skew (total score = -0.02, prototal score = -0.04). Kurtosis, was 2.72 (total score) and 2.58 (pro-rated total score). This was favourable given the relatively small sample size (total score n =110, pro-rated total score n=124), since in inferential statistics, lack of normality can be a problem when the sample size is small. These data indicated no significant departure from normality for either the total score (p= 0.91), or the pro-rated total score (p= 0.63). Figure E.1 indicates that 53% (total scores) and 48% (pro-rated total scores) of the staff population had negative perceptions of barriers to change.

VOTE, IWS and MBI

(b) In this sample the distribution for VOTE was normal (total score skewness = 0.09, pro-rated total score skewness = 0.12; total score kurtosis = 2.71, pro-rated total score kurtosis = 2.74. These data indicated no significant departure from normality (total score p= 0.8483, pro-rated total score = 0.79).

(c) In this sample the distribution for IWS was normal (total score skewness = -0.001, pro-rated total score skewness = 0.10; total score kurtosis = 3.39, pro-rated total score kurtosis = 3.28. These data indicated no significant departure from normality (total score p= 0.57, pro-rated total score = 0.6).

(d) In this sample the distribution for MBI was normal (total score skewness = 0.32, pro-rated total score skewness = 0.41; total score kurtosis = 2.58, pro-rated total score kurtosis = 2.74. These data indicated no significant departure from normality (total score p= 0.26, pro-rated total score = 0. 0.17).

E.2: Follow-up assessments

The graphs presented below plot the residuals, or the difference between the observed and fitted values for the models presented in chapter 8. They suggest that in all models there was no gross departure from normality suggesting that the results were robust to the assumptions for linear regression analyses.

Model 8.1: Outcome – Staff perceptions of barriers to change

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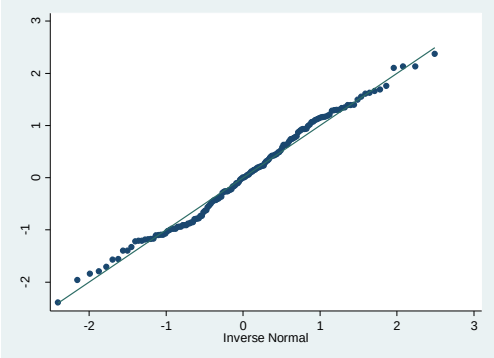
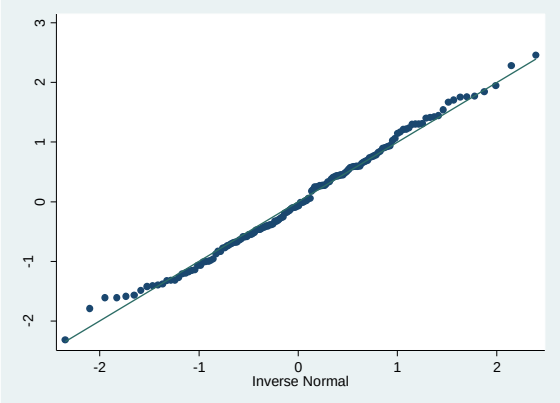
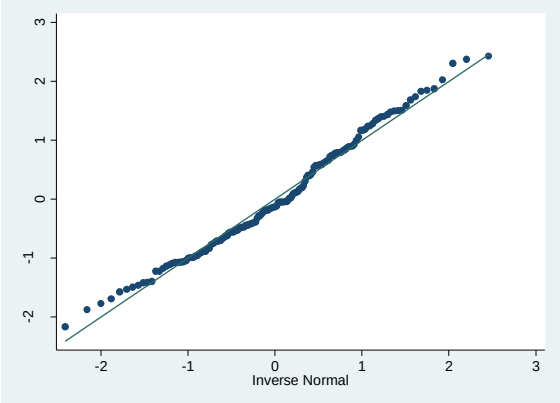
<tr><td> 
</td><td> 

Including incidents and temporary staff

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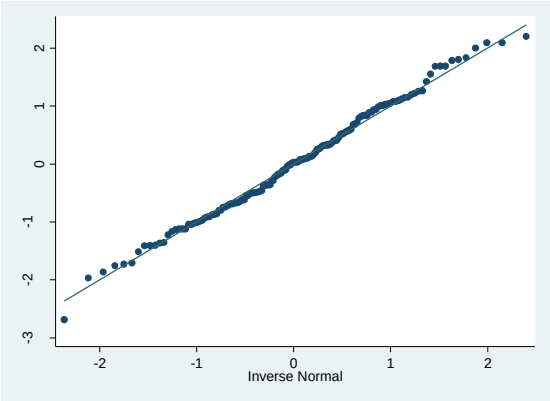
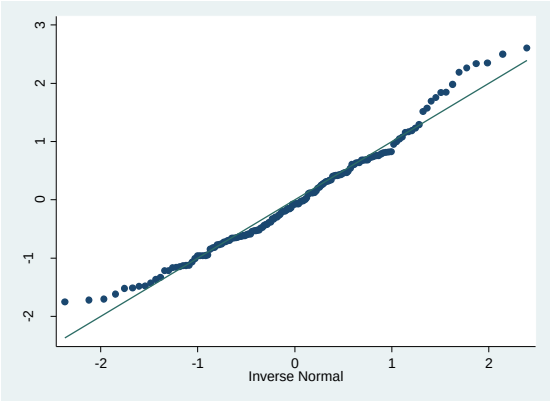
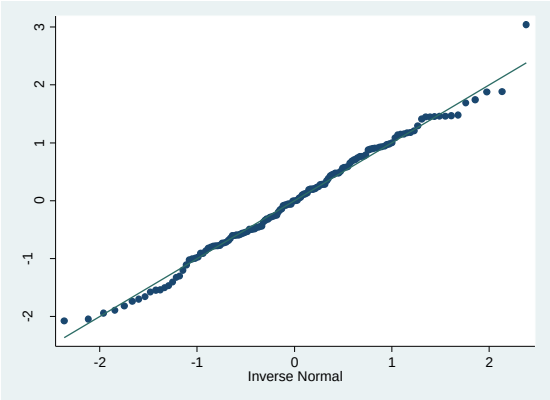
Model 8.2: Outcome – Powerlessness



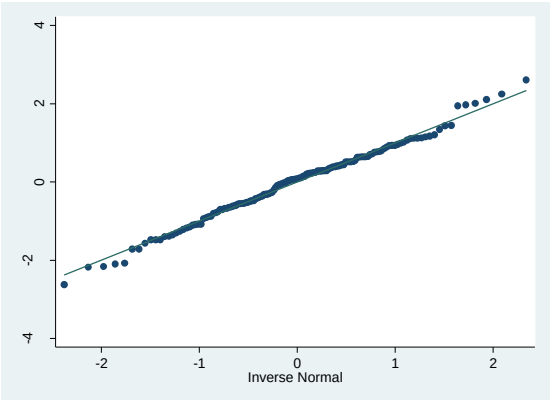
Model 8.3: Outcome – Confidence



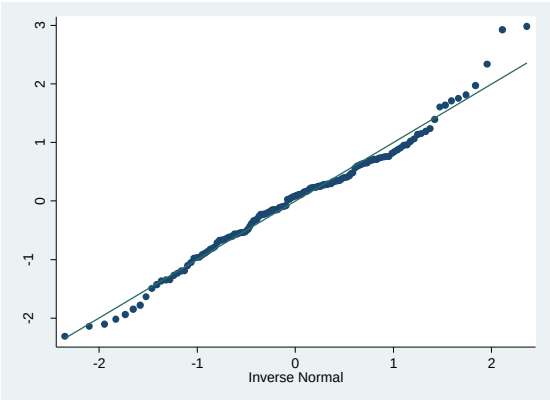
Model 8.4: Outcome – Demotivation



Model 8.5: Outcome – Work satisfaction



Model 8.6: Outcome – Burnout



Appendix F. Missing data analyses

As the sample size at T1 was small, missing data were analysed to explore whether the high 'drop out' rate could be attributed to any known variable (which could then be controlled in later analyses).

Aims
The missing data were analysed to explore whether there were differences to explain why staff 'dropped out' of the study.

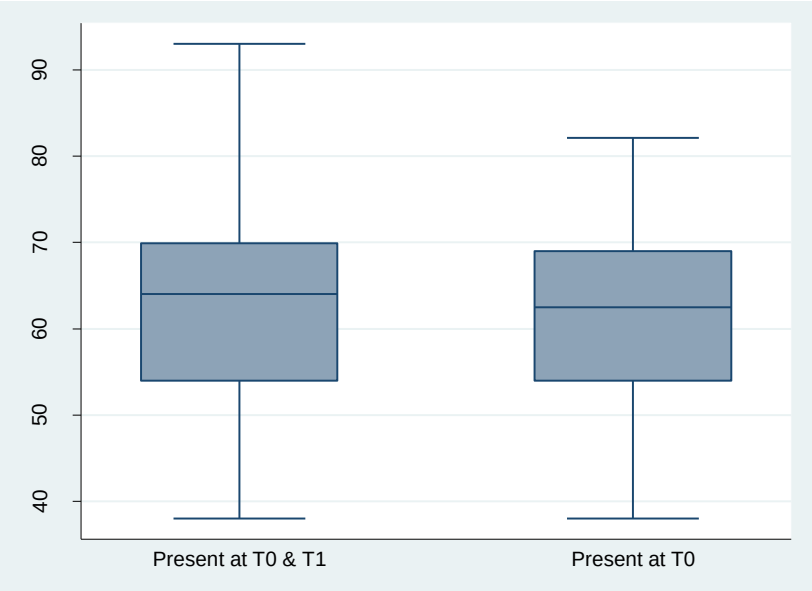
T-tests were used to examine whether any difference existed between the scores of those who completed measures at both time points (present at T0 and T1), and those who were present at baseline.

Drop outs

- There were 125 staff at baseline, and 105 at T1.
- 53 staff participated at both time points.

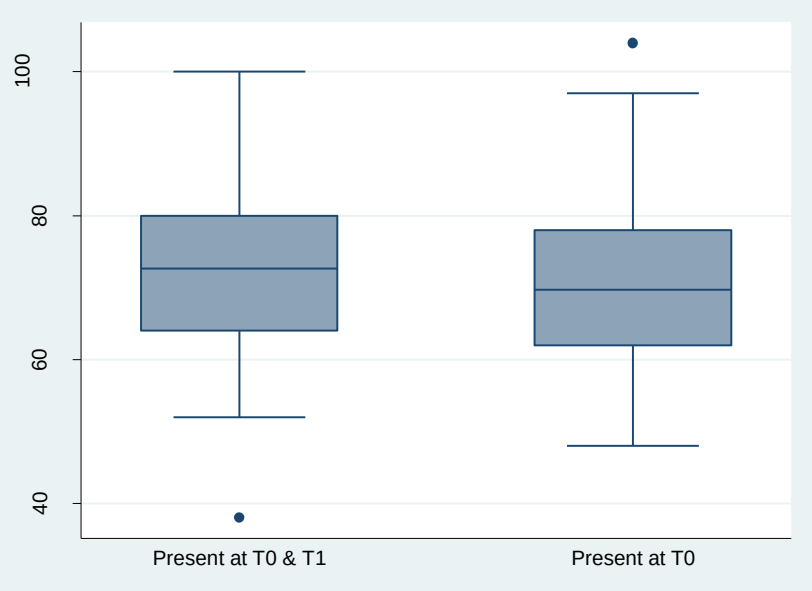
Were the scores of those who remained in the study different from those who completed at baseline only?

Figure F.1: VOCALISE scores for those who remained in the study as compared to those at baseline only



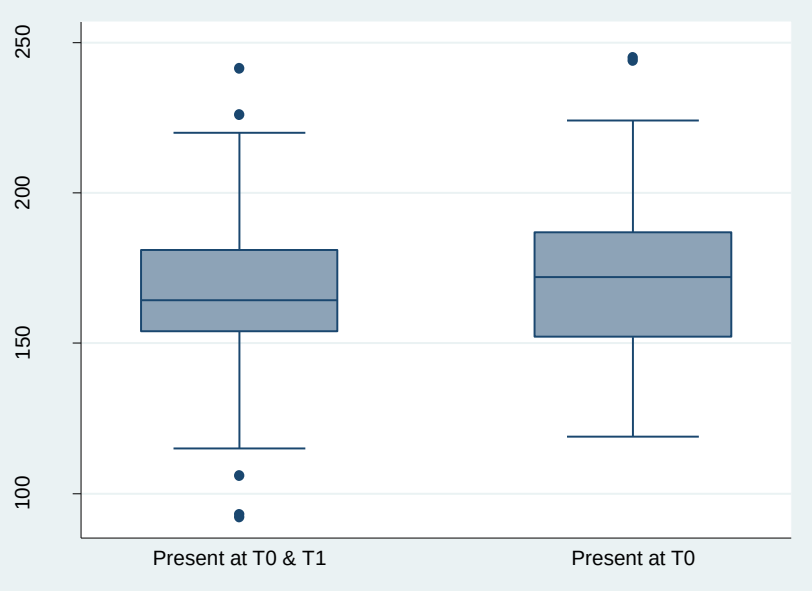
As shown in figure F.1, the VOCALISE scores in the group who completed at both time points was not substantially different from the group who completed at baseline only. The mean VOCALISE score in those who were present at both T0 and T1 was 63.15, N=52). The mean VOCALISE score in those who were present at T0 was 61.57, N=70). There was no significant difference between these scores t(120) = 0.75; p= 0.46, N=122, which suggests that those who dropped out where not different from those who remained.

Figure F.2: VOTE scores for those who remained in the study as compared to those at baseline



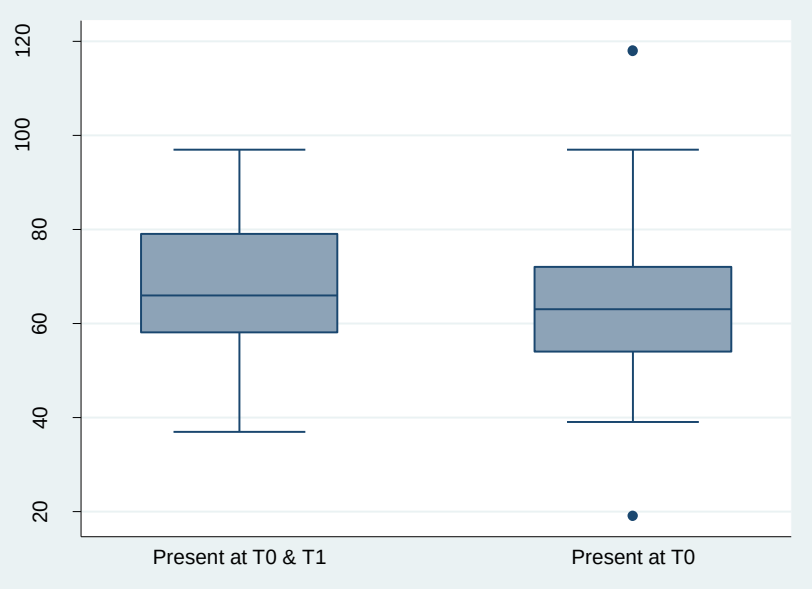
As shown in figure F.2, the VOTE scores in the group who completed at both time points was not substantially different from the group who completed at baseline only. The mean VOTE score in those who were present at both T0 and T1 was 71.21, N=51). The mean VOCALISE score in those who were present at T0 was 71.36, N=70). There was no significant difference between these scores t(119) = -0.06; p= 0.95, N=121.

Figure F.3: IWS scores for those who remained in the study as compared to those at baseline



As shown in figure F.3, the IWS scores in the group who completed at both time points was not substantially different from the group who completed at baseline only. The mean IWS score in those who were present at both T0 and T1 was 166.45, N=50). The mean IWS score in those who were present at T0 was 171.159, N=65). There was no significant difference between these scores t(113) = -0.84; p= 0.40, N=115.

Figure F.4: MBI scores for those who remained in the study as compared to those at baseline



As shown in figure F.4, the MBI scores in the group who completed at both time points was not substantially different from the group who completed at baseline only. The mean MBI score in those who were present at both T0 and T1 was 67.58, N=51). The mean MBI score in those who were present at T0 was 64.69 (N=64). There was no significant difference between these scores t(113) = 0.91; p= 0.36, N=115.

Appendix G. Supplementary longitudinal findings

G.1. Additional exploration of the effects of ward climate on perceptions of barriers to change at follow up, using ward level data

Given the highly significant effect of ward climate (VOTE) (see: Table 8.6: Unstructured multivariate linear model (N=106, 8 wards), showing whether participation in the intervention affected perceptions of barriers to change, adjusting for time, ward, ward climate, baseline age and occupational status, including VOTE, and in order to better explain why individual perceptions varied by ward, the impact of other ward climate indicators (incidents and temporary staff), that were observed to have a significant effect on VOCALISE at baseline, were explored. It was necessary to exclude the ward variable because these data were collected at the ward level and were therefore collinear with ward in the model.

Table G.1: Unstructured multivariate linear model (N= 153, 8 wards), showing whether participation in the intervention affected staff perceptions of barriers to change, adjusting for time, baseline age, occupational status, and ward climate indicators (incidents and temporary staff)

Variables	Coef. β	S.E.	P Value	95%C.I.	
				LL	UL
Intervention effect	***-5.78***	***2.67***	***0.03***	***-11.02***	***-0.54***
Time	***6.18***	***1.88***	***0.001***	***2.49***	***9.88***
Age: -39years/40+	-3.62	2.05	0.08	-7.63	0.40
Occupational status: manager/direct care staff	-4.81	2.51	0.06	-9.74	0.11
Incidents (high/low)	***8.38***	***2.96***	***0.005***	***2.58***	***14.18***
Temporary staff	***0.15***	***0.06***	***0.02***	***0.02***	***0.27***
_cons	59.22	2.52	0	54.27	64.16

There was a significant effect of both incidents and temporary staff on perceptions of barriers to change at T1. The AIC score for this model was 1139.48, which was higher (suggesting a worse fit) than when including the ward variable only. It was not possible to explore interactions between these ward climate indicators and time because of a lack of variation in the data, an issue which was also discussed in chapter 7.

G.2. Did participation in the intervention affect perceptions of powerlessness, confidence, and demotivation at follow up?

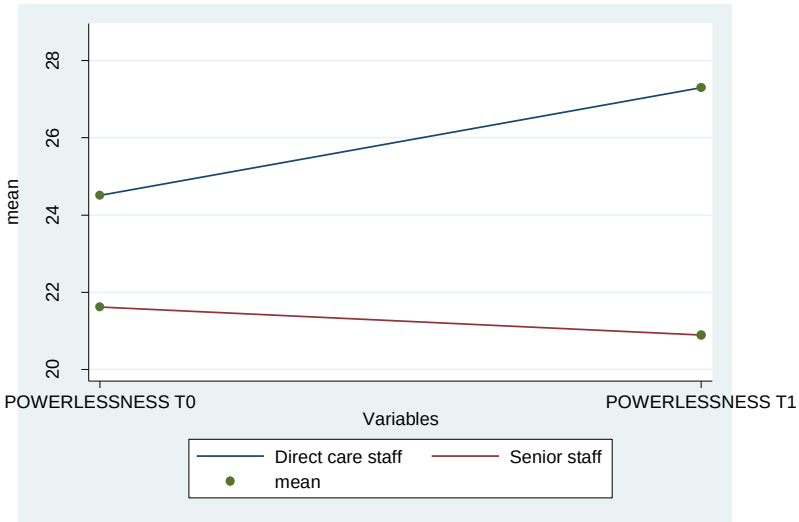
In this section, the full statistics and exploratory analyses are presented for models 8.2, 8.3 and 8.4; where the VOCALISE subscales were the correlated outcomes (see p.204)

G.2.1. Did powerlessness increase as a result of participation in the intervention (model 7.2)?

Table G.2: Unstructured multivariate linear model (N=108, 8 wards), exploring the effect of participation in the intervention on powerlessness, controlling for time, ward, baseline age and occupational status (model 8.2)

Variables			**Coef. B**	**S.E.**	**P Value**	**95%C.I.**	
						LL	**UL**
Intervention effect			-0.53	1.25	0.67	-2.99	1.92
Time			***1.92***	***0.89***	***0.03***	***0.18***	***3.67***
Ward	CTRL	Ward 2	-0.08	1.93	0.97	-3.86	3.70
	INT	Ward 3	-3.31	1.97	0.09	-7.17	0.55
	INT	Ward 4	-0.52	2.30	0.82	-5.04	3.99
	INT	Ward 5	-2.98	1.78	0.09	-6.47	0.51
	CTRL	Ward 6	-3.05	2.12	0.15	-7.20	1.11
	CTRL	Ward 7	-2.06	1.83	0.26	-5.65	1.54
	INT	Ward 8	-1.24	1.95	0.52	-5.06	2.57
Age: -39years/40+			-1.35	1.03	0.19	-3.38	0.67
Occupational status (manager/direct care staff)			***-3.95***	***1.27***	***0.002***	***-6.43***	***-1.47***
_cons			26.92	1.42	<0.001	24.13	29.71

Figure G.1: Mean powerlessness scores at T0 and T1 for direct care staff and senior staff (repeat participants)



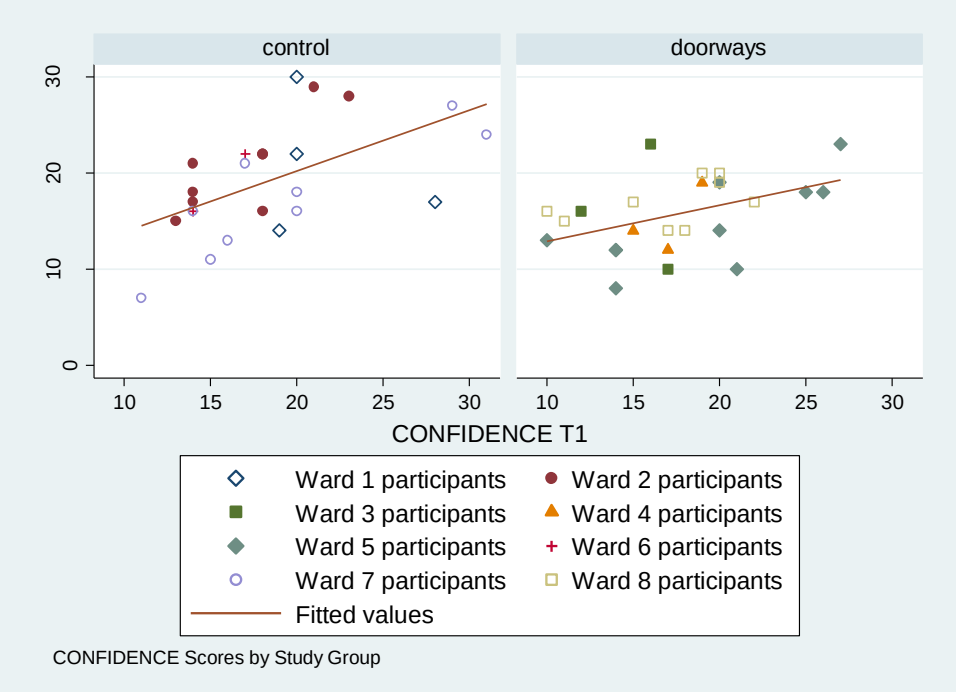
G.2.2. Did confidence increase as a result of participation in the intervention (model 7.3)?

Table G.3: Unstructured multivariate linear model (N=105, 8 wards), exploring the effect of participation in the intervention on confidence, controlling for time, ward, baseline age and occupational status (model 8.3)

Variables		Coef. B	S.E.	P Value	95%C.I.	
					LL	UL
Intervention effect		-2.27	1.40	0.11	-5.01	0.47
Time		***2.09***	***0.97***	***0.03***	***0.19***	***3.99***
Ward	Ward 2	-0.72	1.55	0.64	-3.77	2.32
	Ward 3 (INT)	***-3.73***	***1.59***	***0.02***	***-6.84***	***-0.62***
	Ward 4 (INT)	***-4.62***	***1.85***	***0.01***	***-8.24***	***-1.00***
	Ward 5 (INT)	***-5.53***	***1.43***	***<0.001***	***-8.33***	***-2.73***
	Ward 6	-2.74	1.85	0.14	-6.36	0.89
	Ward 7	-2.27	1.47	0.12	-5.15	0.61
	Ward 8 (INT)	***-3.17***	***1.59***	***0.05***	***-6.28***	***-0.05***
Age: -39years/40+		-0.32	0.85	0.71	-1.99	1.36
Occupational status (manager/direct care staff)		***-2.94***	***1.01***	***0.004***	***-4.92***	***-0.96***
_cons		20.81	1.15	<0.001	18.56	23.06

For comparison with the model predictions, the association between perceptions of confidence and ward was explored by plotting the unadjusted mean confidence scores at T0 and T1 of the repeated measures sample (figure G.2.).

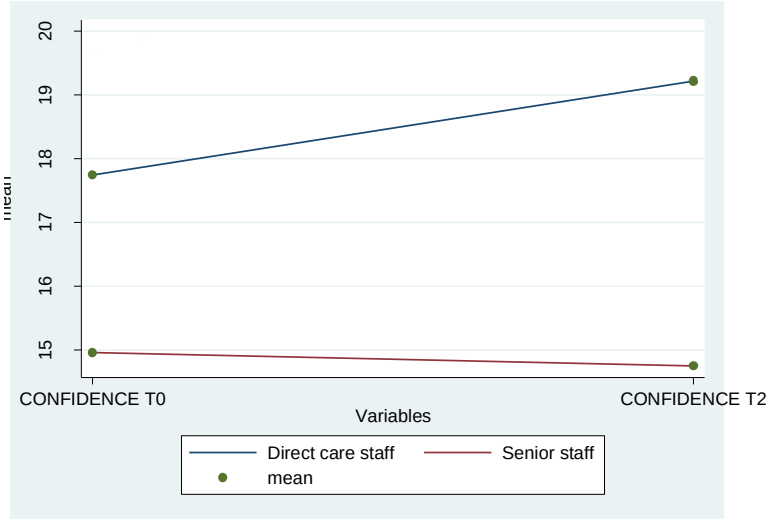
Figure G.2: Unadjusted mean confidence scores at T0 and T1 for each ward by study group (repeat participants)



Consistent with model 8.3, this figure shows some variation in how staff on different wards perceived confidence.

For comparison, the unadjusted mean scores at T0 and T1 were also plotted for both groups of occupational status in the whole repeated measures sample. Figure G.3 also shows that direct care staff had less confidence than senior staff at both T0 and T1.

Figure G.3: Mean confidence scores at T0 and T1 for direct care and senior staff (repeat participants)



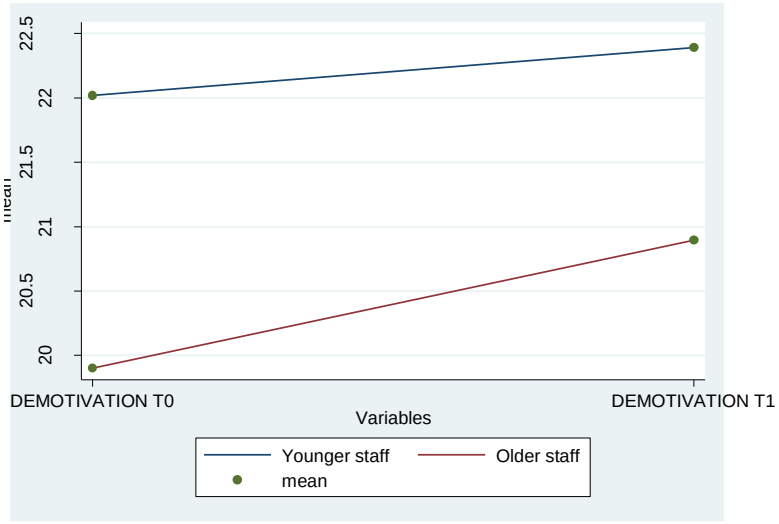
G.2.3. Did demotivation increase as a result of participation in the intervention (model 7.4)?

Table G.5: Unstructured multivariate linear model (N=104, 8 wards), exploring the effect of participation in the intervention on demotivation, controlling for time, ward, baseline age and occupational status

Variables			Coef. B	S.E.	P Value	95%C.I.	
						LL	UL
Intervention effect			1.32	0.72	0.07	-0.10	2.73
Time			-1.93	1.02	0.06	-3.93	0.07
Ward	CTRL	Ward 2	-0.10	1.50	0.95	-3.04	2.84
	INT	Ward 3	-1.80	1.54	0.24	-4.82	1.23
	INT	***Ward 4***	***-4.46***	***1.78***	***0.01***	***-7.96***	***-0.97***
	INT	***Ward 5***	***-2.86***	***1.39***	***0.04***	***-5.58***	***-0.15***
	CTRL	Ward 6	-2.82	1.61	0.08	-5.97	0.33
	CTRL	Ward 7	-2.65	1.43	0.06	-5.46	0.16
	INT	Ward 8	-2.52	1.52	0.10	-5.50	0.45
Age: -39years/40+			***-1.78***	***0.79***	***0.03***	***-3.34***	***-0.23***
Occupational status (manager/direct care staff)			0.67	0.97	0.49	-1.23	2.57
_cons			23.82	1.11	0.001	21.65	26.00

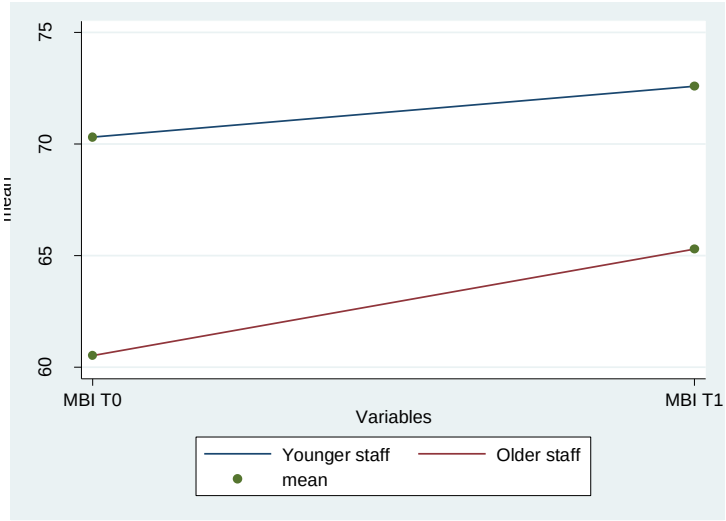
Across the two time points, older staff were more motivated than those who were younger, This effect is indicated in figure G.4 below, which shows demotivation scores for the repeat participants sample at T0 and T1.

Figure G.4: Unadjusted mean demotivation scores at T0 and T1 for younger and older staff (repeat participants)



G.3. Did participation in the intervention worsen perceptions of work satisfaction and burnout at follow up? (models 8.5 and 8.6)?

Figure G.5: Unadjusted mean burnout scores at baseline and T1 for younger and older staff (repeat participants)



Appendix H. Baseline service user characteristics

Service User Characteristics		WARD							
		1	**2**	**3**	**4**	**5**	**6**	**7**	8
N=		52	23	27	14	50	36	31	32
Ethnicity	**Black Minority Ethnic Group**	23	15	15	1	21	20	19	15
	White British/Irish/Other	29	8	12	13	29	16	12	17
Age	**18-35**	21	4	12	5	25	13	13	9
	36-65	23	19	14	9	24	20	17	23
	65+	8	0	1	0	1	3	1	0
Diagnoses	**Mental & Behavioural disorders due to use of alcohol/drugs**	4	3	1	1	9	3	2	2
	Personality Disorders	4	0	2	3	2	2	0	2
	Psychotic disorders	28	17	24	4	31	20	25	20
	Anxiety/depression	11	0	0	5	2	9	1	8
	Other	5	3	0	1	6	2	3	0

The table above shows how the wards differed across a number of service user characteristic and these data represent all service users admitted to the wards during the month of baseline data collection. Wards two and seven had proportionately higher numbers of service users from a black or ethnic minority group. These two wards also had proportionately high numbers of service users with psychotic disorders. Wards 3, 4, 5, and 8 were assigned to the intervention arm of the trial.

T1 service user characteristics (DOORWAYS sample only)

Service User Characteristics		**WARD**							
		1	**2**	**3**	**4**	**5**	**6**	**7**	8
N=		9	16	7	10	21	7	13	16
Ethnicity	**Black Minority Ethnic Group**	5	8	4	5	9	2	6	8
	White British/Irish/Other	4	8	3	5	12	5	7	8
Age	**18-35**	0	8	2	6	10	2	3	5
	36-65	8	8	5	4	11	5	9	11
	65+	1	0	0	0	0	0	1	0
Diagnoses	**Mental & Behavioural disorders due to use of alcohol/drugs**	0	0	0	0	0	0	1	0
	Personality Disorders	1	1	0	0	1	1	0	3
	Psychotic disorders	7	10	6	2	13	3	10	11
	Anxiety/depression	1	2	1	2	4	3	1	2
	Other	0	3	0	6	3	0	1	0

The table above shows ward differences according to service user characteristics from the DOORWAYS sample, at the T1 follow up. Ward 5 in particular shows higher numbers of service users in comparison to the others at both time points.

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